

FORESTS

CONSERVATION

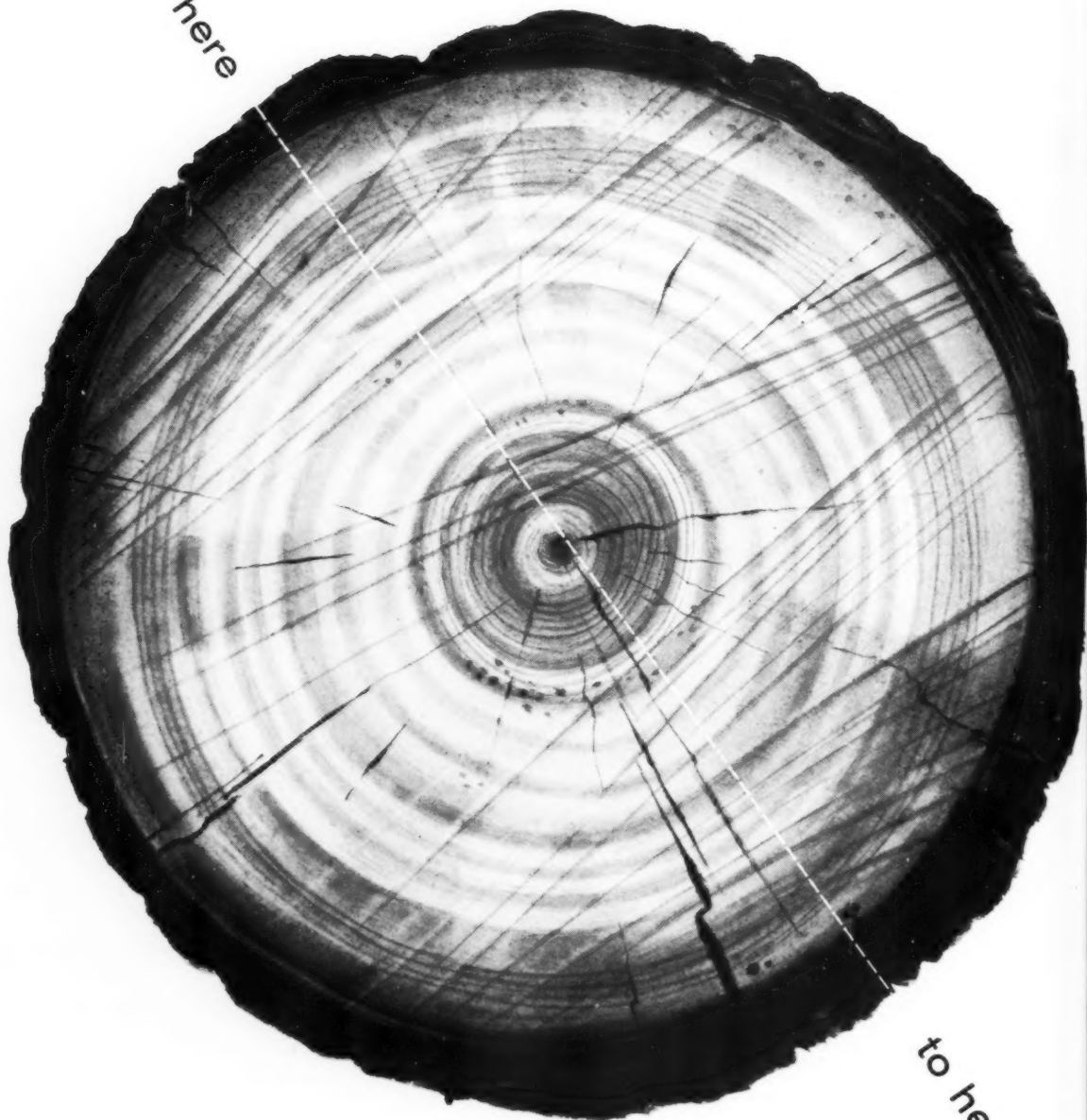


United States Forest Conservation Commemorative Postage Stamp

A
Salute
to
Arizona

PAGE 21

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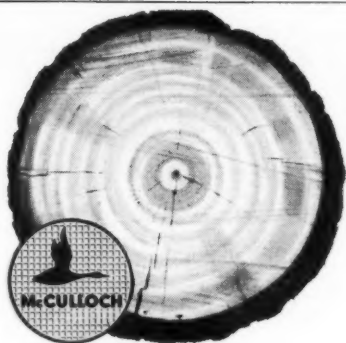


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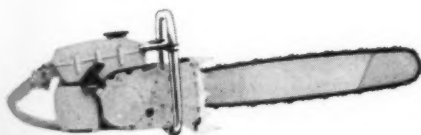
McCULLOCH

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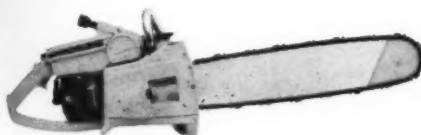
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Carrying the Mail for Forest Conservation

CARRYING the mail for forest conservation is nothing new for 31,000 rural mailmen in the United States. For years, the rural carriers have been reporting forest fires to the Department of Agriculture and news on bird migrations to the Fish and Wildlife Service. From the days of the rural mailman with his horse and buggy and later with his Model-T this has provided a valuable and purely voluntary public service.

Recently something new has been added to this service, and nothing quite like it has ever happened to forest conservation before. By authorizing 160 million copies of a Forest Conservation Commemorative Postage Stamp (see cover) to be officially released October 27 at The American Forestry Association's annual meeting at Tucson, Arizona, the Post Office Department will be carrying the story of forest conservation into millions of American homes for the first time.

The stamp designed by Rudolph Wendelin of the Department of Agriculture tells in a flash the story of wise-use forestry in America and its relationship to soil, water, wildlife, and timber. This story, as told in a three-color stamp on millions of envelopes, will be personally handed to Mr. and Mrs. America by 176,501 letter carriers in America in coming months.

Since the Forest Conservation Stamp commemorates the 100th anniversary of the birth of that great forestry advocate, President Theodore Roosevelt, The American Forestry Association expects that the new issue will enjoy a big first-day sale. The record up to this time is held by the Whooping Crane Stamp issued last year and designed by wildlife artist Bob Hines. The whooper stamp had a whooper first-day sale in excess of four million, but informed insiders say the Forest Conservation Stamp is even better, and we hope to break that record.

If you want to help, here is what you can do. Go to your local post office and buy as many blocks of the Forest Conservation Stamp as you can afford. Tell your friends and neighbors about the stamp and urge them to buy also. That will help swell the first-day sale.

CHAIN SAWS

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American FORESTS

PUBLISHED BY THE AMERICAN FORESTRY ASSOCIATION

James B. Craig
Editor

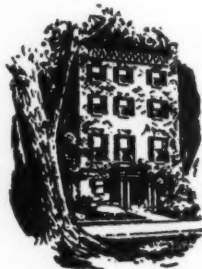
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The AFA

The American Forestry Association, publishers of *American Forests*, is a national organization—independent and non-political in character—for the advancement of intelligent management and use of forests and related resources of soil, water, wildlife and outdoor recreation. Its purpose is to create an enlightened public appreciation of these resources and the part they play in the social and economic life of the nation. Created in 1875, it is the oldest national forest conservation organization in America.

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See Theodore Roosevelt National Memorial Park, in North Dakota's beautiful Badlands.

T.R.—the cowboy who rode herd on our natural glories

Most Americans think of Teddy Roosevelt as part bull moose and part steam-engine. But mostly, T.R. was the Fourth of July r'ared back and walking on its hind legs. *He was a man on fire for his country*, and it was the natural glories of this land that lit the fuse.

They've made a wonderful park of his Elkhorn Ranch and the Badlands where he worked as a cowboy and found health and strength. Here, you can see the open range that made him first appreciate his country's greatness. You can ride the trails that gave his imagination new directions. You can climb the ridges that lifted his eyes, and gave him the power to lead his Rough Riders up San Juan Hill in '98.

This is the centennial of T.R.'s birth; if he were around today, he'd be "dee-lighted" that the conservation policies he fostered have been so wisely continued. He knew America would always need breathing space, open waters and green, growing forest — the heart lifting glories of Nature that men must have to grow strong and great.

★ ★ ★

FREE TOUR INFORMATION If you would like to visit Theodore Roosevelt National Memorial Park, or drive anywhere in the U.S.A., let us help plan your trip. Write: Tour Bureau, Sinclair Oil Corporation, 600 Fifth Avenue, New York 20, N. Y.—also ask for our colorful National Parks map.

ANOTHER IN SINCLAIR'S AMERICAN CONSERVATION SERIES

SINCLAIR SALUTES THE THEODORE ROOSEVELT CENTENNIAL COMMISSION

for its far-reaching educational campaign during 1958 to perpetuate the ideals of *responsible citizenship* as exemplified by the vigorous, many-sided life of our 26th President, Theodore Roosevelt. By giving new impetus to public interest in conservation of our natural resources, always of vital concern to T.R., the Commission reminds all Americans of the importance of *refreshing the human spirit* by visiting and appreciating the great outdoors.

SINCLAIR

A Great Name in Oil



Forest Forum

The Real Sherman Adams

Editor:

Truly enjoyed your August article on Sherman Adams. *I believe in the integrity of that gentleman.*

Allan B. Plank
2311 N. Front Street
Harrisburg, Penna.

Editor:

I want to be among the first of your correspondents to congratulate you upon the timely and objective analysis of the real Sherman Adams in the August issue. You have highlighted the life and philosophy of this public-spirited leader in a forthright manner that should have been adopted by some other writers who misunderstood or deliberately misrepresented the character known and respected by so many of his colleagues for so many years. . .

Your series of short biographies and interesting interviews of our current leaders in conservation is one of the most readable, stimulating, and informative features of the magazine.

Robert S. Monahan
Committee on Resources
Recreation and Development
Hanover, N. H.

Small Woodlands Opinion Poll

Editor:

At the outset of this letter I would like to say that any solution to the problem of successful management of the small forest ownership is no more evident to me than it apparently is to a number of your other readers. . . . The "Opinion Poll" appearing in the August issue of your magazine served only to convince me further of the complexities involved. Inasmuch as I was unable to give full support to any one of the twelve proposals as presented, I would like to voice my opinion by making two comments which, admittedly, carefully avoid one of the basic and most controversial issues involved: that of public vs. private responsibility.

While the scope of the problem is nationwide in principle, regional dissimilarities involving inherent physical, social, and political factors have a pronounced influence upon the specific character of the problem. A program, policy, or philosophy instituted on a nationwide basis might go far in advancing small woodland management practices in one state, say Kentucky, but, at the same time, might be quite inappropriate in meeting the needs of the small forest ownership in another section of the country, say Vermont. I believe this has been amply demonstrated in certain pieces of federal farm legislation of the past few years.

Effective management of the small forest property has long constituted one of the recognized problems in American forestry. To the best of my rather limited knowledge

along this line, I believe that various federal, state, and private agencies have conducted numerous regional studies, surveys, hearings, and meetings to determine cause and effect relationships associated with ownership of the small woodlot. It strikes me that the aggregate results of such past and present research should have some little bearing on the case in point, and would enable one to operate on a bit more objective level of discussion.

David A. Rock
College Forester
Berea College
Berea, Kentucky

"Little Leaf" Rises Up

Editor:

It amazed me when I turned to page 30 of the August, 1958 issue of our magazine, *AMERICAN FORESTS*, and saw a reprint of "Half Measures Cannot Solve a Bad Problem" by the Charleston, West Virginia *Charleston Gazette*. This editorial was printed in the *Charleston Gazette* the morning that Governor Underwood's Forest Fire Prevention Conference began at the Greenbrier Hotel at White Sulphur Springs, West Virginia.

I think the editorial was more a political dig at a Republican governor by a Democratic newspaper than anything else. In reply to the *Charleston Gazette* I wrote the following letter. Being a "little leaf" in the hills and forests of West Virginia I did not receive nor did I expect a reply.

Editor—*Charleston Gazette*
Charleston, West Virginia

Dear Sir:

Shame on the *Charleston Gazette* for its editorial concerning the Governor's conference on forest fire prevention in your July 7th issue. This is especially true when six short years ago this fall you could not see across the Great Kanawha River for woods smoke.

Such incidents as the following have happened and will continue to happen in West Virginia unless all of us are forest fire conscious. It was a dry windy day in late April some 40 years after Father began purchasing the home farm with its 75 acres of cut over woodland. Father had cared for the woodlot, for it was a vigorous community of trees with associated plant and animal life. Then it happened, and within an hour fire had swept the whole area. Fire had not completely destroyed the woodland. It had reduced the cash value by 50 percent, and worst of all—how could he get rid of all the damaged unmerchantable trees? Father said, "Son I should have sold for that \$8,000 offered me last fall." The most important reason why we do not have forest management in West Virginia with protection from disease and insects is the indifference of our people. Until the irresponsible are taught

to stop firing our woods, the responsible people cannot and will not put their efforts into growing timber.

With our present lack of enthusiasm towards forest fire prevention, we will most certainly have at least half of our forest burned within the next fifty years. Would you enter into a 40 to 80 year contract with God, land, rain, and man if your chances were 50-50? I am afraid the answer is no.

In all likelihood, wildfire will be the number one enemy of our forests in the centuries to come. We can control fire only if everyone is vigilant. If we are reasonably sure that the crop can be harvested, then the responsible will begin to plant, to weed, to thin, and to do the many other tasks necessary to diminish losses through insects and diseases.

cc/West Virginia Forest Council
State Forester

Very truly yours,
Thomas G. Clark
Consulting Forester

Sincerely, I believe that if you had tramped the mountains of the Southern Appalachians and had your life bound up as I have with the ability of mountains to produce a timber crop, you would not have reprinted the editorial. *FOR*—how would the insects and diseases survive and damage the timber if our forests were smoke and ashes?

Thomas G. Clark
Forest Land Management Co.
Morgantown, West Virginia

Burning Alaska

Editor:

B. Frank Heinzeleman just showed me a copy of your August issue. I requested permission to publish his editorial in *The Daily Alaska Empire*. His permission was granted. I would like to have your permission also.

In John Clark Hunt's article, "Burning Alaska," he made a very serious misstatement of fact on page 15. He said: "But the Alaska fires seldom rate more than a small item in the middle of our newspapers, so we have heard little of them. No town has ever been burned. Probably no Indian village has ever been wiped out and few people have lost their lives in the fires, hence—few headlines."

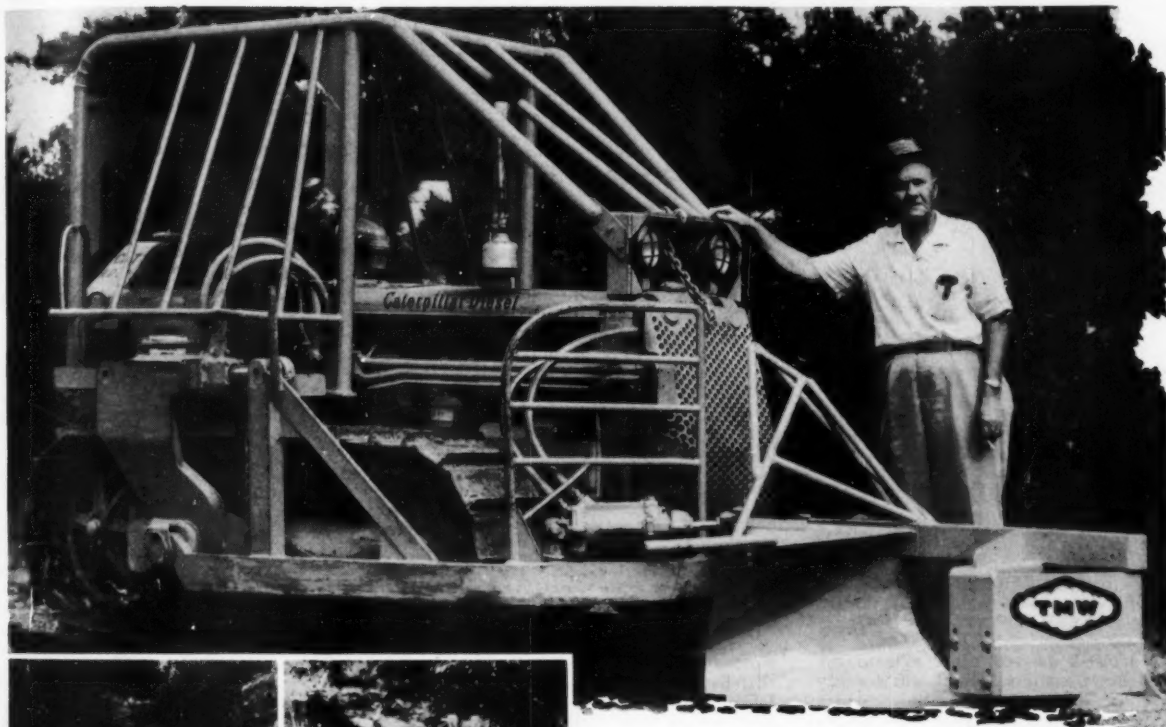
Obviously Mr. Hunt is one of the seven-day authorities on Alaska. He spends a week in the territory, one-fifth the size of the U. S., and then writes with authority.

I wonder if Mr. Hunt knows that Douglas, Alaska has burned down three times, that Alaska's largest city (estimated at 30,000) was completely wiped out by fire, that a number of people lost their lives. That the largest headlines *BS* (before statehood) were used by the *Empire* in 1926 to describe the fire, that we constantly play up fires in

(Turn to page 73)

Timber Growers DREAM

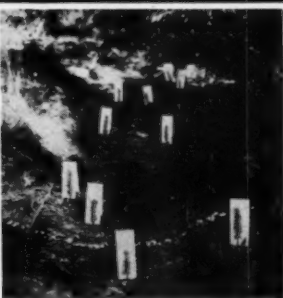
TAYLOR PUTS THE PLOW
UP FRONT... WHERE A
FIRE PLOW OUGHT TO BE



Beaman Noblin, General Manager, Choctaw and Winston Counties Soil Conservation Districts, Ackerman, Mississippi, (Land Management Division) is shown with the new Taylor front-end plow.



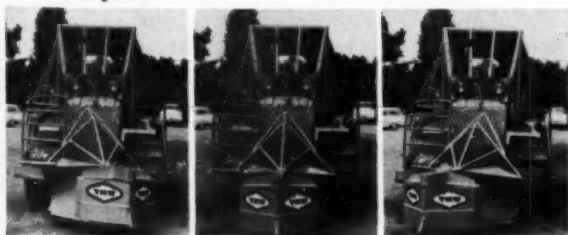
This picture shows five-foot fire line cut by the plow. The cut is two inches deep and level. The plow cuts the shallowest line possible so that the possibility of erosion in the line is remote. The wheels of the tractor flatten out the dirt on either side and make a perfect roadway for a jeep to follow the tractor with spray.



This picture shows a fire line cut by the plow last year. A number of pine seedlings have volunteered in the line. The white line in foreground shows the contour of the cut made by the TIMBER GROWERS DREAM. The unit is transported on a conventional two-ton truck chassis and can be loaded and unloaded at any location easily and quickly.

CAN BE EASILY STEERED

The plow itself can be steered from the cab of the tractor and the operator can select the best line of travel for the line and follow it quickly and easily. Note various positions of plow.



"The front-mounted fire plow is the most valuable conservation tool we have in our 40,000 acre forest preserve. With just half as many men as we needed with tail-plows, we construct and maintain more efficient fire lines for a much lower construction cost. Using the unit as a scalping tool to regenerate lands to pine, we have cut costs by more than half. We are now able to plant or underplant by direct seeding with a mechanical seed drill and place the seed exactly where we want them without any expense for prior site preparation. The front-mounted plow is a real breakthrough in progressive forest management!"

Write For Complete Information

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"The Forestry Trinity"

The following letter was written by Mr. J. V. Whitfield, Wallace, North Carolina, former president of the Forest Farmers Association to Mr. T. W. Earle, president, Gair Woodlands Corporation, Savannah, Georgia.

DEAR TED:

I have not forgotten that I promised you on April 12th that I would reply to the copy of your letter of April 11th to Walter Myers in regard to the Cooley Bill at a later date. I delayed because there are several other matters I think our forestry people should take definite note of, and I felt my letter to you in regard to the Cooley Bill could be used as a vehicle to point out some facts that ought to be stressed. As a matter of fact, I shall not say much about the Cooley Bill now, for I think our Research Committee that was created at the last directors' meeting could confer profitably on its provisions.

It could be called presumptuous for me, a small timberland owner and just an amateur in forestry matters, to venture to tell you anything about a field into which you were born and bred. But I have always proceeded on the hypothesis that when asked an honest question it was my obligation to give my honest opinion, or, when I observed something wrong, from my point of view, in any set-up with which I was associated in any capacity, the least I could do was to bring it to the attention of the proper persons—for their appraisal. It is in this spirit that I am going to endeavor to toss a few impressions on paper for you to think over seriously. Likewise, I trust those to whom I shall send a copy are going to do so too.

It is nothing new to those with whom I have been associated in forestry in any sphere since 1945 that I regard the production, protection, and distribution of trees and their products as a trinity. It is a trinity composed of private enterprise, the U. S. Forest Service, and the state forestry services. As I see it, you cannot make fundamental, over-all progress on the American forestry scene unless due regard is accorded each member of the trinity, and all policy making for forestry must be based

on that concept. I am mindful that there are those who do not agree with me. However, we must remember that our industrial might has become powerful because in the crucible of the democratic process we accord ideas and concepts the right to vie with each other as to their respective values.

I think you men who have taken Dr. Charles Herty's formula and made a great industrial empire out of the pine forests of the South have wrought one of the great achievements of this or any other age. In my book, no accolade is too great to accord you for having literally hewn from our region a cyclopedic enterprise that has lifted our economy immeasurably. Of course, many of you had already successfully staked your claim amid the hardwoods and your expansion among the pines extended your influence from regional to national and international scope.

Now I want to chat with you about the other two members of the trinity. They must be strengthened. Don't get the idea I am advocating that the U. S. Forest Service take over any particular function of private enterprise. During my six years as president of the Forest Farmers Association I asked—applying the Socratic method purposely—scores of forestry people, in both private enterprise and government forestry, questions pertaining to the entire gamut of forestry problems. It wasn't long before I knew what was uppermost in the minds of each group. The Forest Service thought primarily in terms of more funds with which to carry out their understood functions. We private enterprise boys just want to be let alone to do as we please and we keep a particularly jaundiced eye out for even a hint of encroachment upon what we understand is our domain and the functions thereof. That is understandable, and there is nothing wrong with either point of view, but what can be corrected by the proper liaison between the Forest Service and private enterprise!

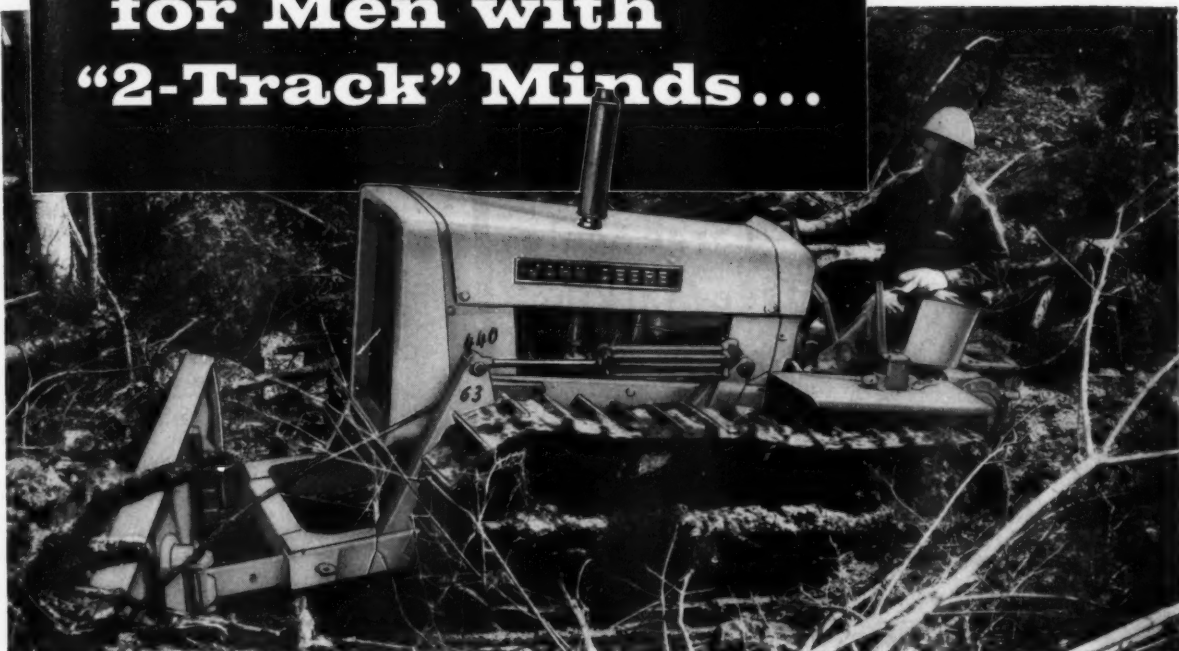
I think Frank Heyward's motion adopted at our last directors' meeting is a fine step in the right direction. You will recall we adopted his motion to create a Research Committee to observe whether the Forest Service is duplicating in its Research Centers and its work. I am pleased Frank did that, and I feel we should go further. I

thought at the time, and I think now, that what we need is an all-inclusive committee. I think of it as a liaison committee; a committee that could and would confer with the proper officials of the Forest Service as to their needs and their point of view at all times. I'm not just talking about a "watch dog" committee. I'm speaking about a committee that will create a proper atmosphere in which to work together and an attitude of striving together for a forestry program that will protect and expand every segment that contributes to the twenty five billion dollar stake that forestry has in the gross national income. Men of good will can sit around a conference table and do that.

When once the world of forestry has such a committee or committees, the proper functions of the three members of the trinity I have been advocating will be delineated and respected. Oh, I know, the predatory vultures and the dictators will recurrently appear on the scene. But you see, you can't always handle them by law. They will find some way to circumvent the law and some one to share the booty with them if money or resources are involved, or to share the honor in some capacity, if power and influence are their dish. Why, you know you can't prevent the circumventing of a criminal, civil, or moral code when in the city of the Supreme Court itself you can't even keep a hound's tooth clean. As I have observed it, courageous committees composed of men of fair play are the best guardians of a program for any organization. In practice, the mere "watch dog" committee is frequently fooled and usually functions only to expose the errors or rascality after they have taken place. We need the type of committee that creates the atmosphere in which a charlatan of any type cannot function—whether he be of private enterprise or government. Every association of any forestry group should, I maintain, have such a committee.

If we in private enterprise had to stand up before St. Peter today and render an accounting of our sins of commission and omission in regard to our state forestry organizations, I suspect he would hand most of us a road map showing the shortest route to the main door of His Satanic Majesty's domain. Generally speaking, we have, indeed, treated our state forestry services as the low man on the totem pole. While that

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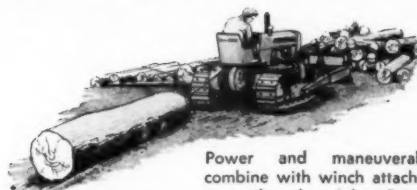


JOHN DEERE Crawler TRACTORS

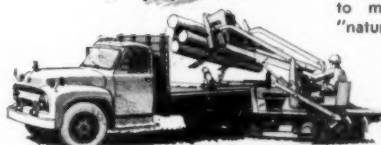
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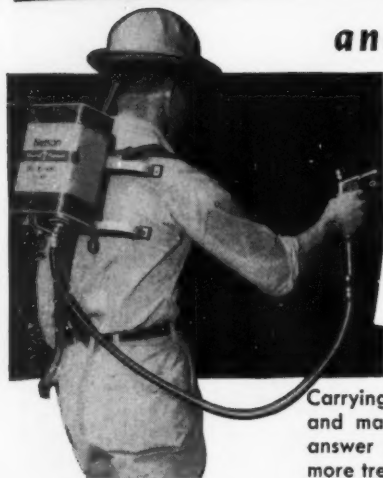
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THE NELSON CO. IRON MOUNTAIN, MICH.
MONTGOMERY, ALA.

classification does not apply to all of the states, it does to the majority. For the most part, the states have been niggardly in appropriations, and the staffs have had to operate under the Damocles sword of guessing who would be the next governor of their state, and acting accordingly. How in the world can we build up a strong state forestry system that will protect and develop a state's forestry resources under any such condition as that? Of course, to ask the question is to answer it. We of private enterprise have too often been either innately opposed to a competent state forestry set-up or have dragged our feet in doing anything about it. We did not hesitate to hire any forester in the employ of the state that we decided we wanted. We could do it because the salary the state would pay was too low to begin with. There is no reason why private enterprise should not seek and employ competent foresters wherever they may be found. However, we fail in our duty to forestry and to the state when we fail to go all-out to build a dynamic state forestry organization in our states. We should not fail to sit down with the governor and the state legislators and show them the need, and insist on the best. Our efforts should not have an air of perfunctory duty and "Well, let's hurry up and get it over with—'cause it can't be done anyway." It should be pursued with bulldog tenacity. If we can't get what is needed in one year, why, there is another year coming up. Inch up to the goal if we have to, but never stop until we have a state forestry service that is top-notch and will pay dividends.

In addition to a competent state forestry service, private enterprise should see to it that each state has a strong forestry association.

It is quite evident that I do hold to the tenet that we can not reach our full potential unless private enterprise, the U. S. Forest Service, and state forest services are strong. Anything less means that we are willing to settle for mediocrity. To me, private enterprise, for its own sake, should demand a strong federal and state forestry service as the least common denominator it will accept.

What about our schools of forestry? Put them where they belong—on a pedestal by themselves. They are the source of our brain power. They must be a school within a school. They must be a school within a university or college superlative in each one of its schools, in which the aspiring forester will study. Obviously, laboratory equipment must rank with the best.

The last time I was in Washington I tried to see Mr. Cooley, but he was attending a committee meeting. I wanted to talk with him about his bill. As soon as I read the bill I did some investigating on appropriations for research to the Department of Agriculture. And the thing that astounds me is that of the thirty million dollars given the Agricultural Experiment Stations for research, only one half million dollars finds its way into forestry research. It seems to me that some missionary work is going to have to be done among the deans of agriculture of our land grant colleges with schools of forestry to see just how interested the schools of agriculture really are in forestry. When less than two percent of the money allotted for agricultural research reaches the forestry schools, either the interest is not there or we have been negligent of our responsibilities. It would be interesting to know why all of the forestry schools haven't busied themselves in getting

(Turn to page 72)

How many men in this picture?

You can't see them, but there are thousands. They're the men of The American Forestry Association. Without them, no picture of our forests would be complete. In fact, we would have no forests.

We of The American Tobacco Company salute the foresters for the magnificent job they've done. We wish them even

greater success in the future. But we know that everyone must help. So our TV programs will continue to remind Americans that carelessness with matches, cigarettes and campfires can destroy our forests. We hope our campaign against negligence will make the foresters' job an easier one.



The American Tobacco Company
"Tobacco IS OUR MIDDLE NAME"

LUCKY STRIKE • PALL MALL • HIT PARADE • HERBERT TAREYTON • DUAL FILTER TAREYTON

PROGRESS IN FORESTRY in the SEABOARD SOUTHEAST

Forestry has made greater advances in the Seaboard Southeast in the past two decades than at any other time in history. Unprecedented demands for timber have brought the realization that trees are one of our most valuable crops, and sound management of forest lands is rapidly becoming the general practice throughout the area.

In the six southeastern states of Virginia, North Carolina, South Carolina, Georgia, Florida and Alabama, there are 113,000,000 acres of forest lands, comprising more than 60% of the total land area. Forest resources of the area are of inestimable importance to the economy of the region, providing profitable employment for a large proportion of the populace and furnishing the basic raw materials for industrial products valued in billions.

Seaboard's Industrial Department, through its Forestry Division, works energetically and continually with wood-using industries, landowners and various agencies in the promotion of sound forestry practices to the end that an abundant and continuing supply of wood may be available for all future needs.

**Industrial Department
Seaboard Air Line Railroad Company
Richmond 13, Virginia**



THROUGH THE HEART OF THE SOUTH



Obviously pleased with final product are (l.) AFA's Exec. Vice Pres. Fred Hornaday, stamp's designer Rudy Wendelin, Forest Service Chief R. E. McArdle, Mrs. Bowler, Post Office Dept., AFA Forester K. B. Pomeroy.

FORESTRY STAMP COMES OFF THE PRESS

Rayburn Keagy, right, a supervisor at the Bureau of Engraving and Printing, explained operation of intricate machines used to engrave the plates for stamps.



THE Giori press at the Bureau of Engraving and Printing is working at full speed these days to produce the 160 million Forest Conservation Stamps ordered by the Post Office Department, an amount 40 million greater than the usual commemorative stamp issue.

By working seven days a week and three full shifts per day, with each shift producing 7500 stamps, these attractive three-color forestry stamps (green, yellow, and brown) will be available in ample time to meet distribution requirements and First Day Sales orders scheduled for October 27, at The American Forestry Association's annual meeting in Tucson.

The unique press printing the forestry stamp is believed to be the only one of its kind in this country. The bureau purchased the press, an itaglio printing press, about a year and a half ago from the Giori organization in Switzerland for a quarter of a million dollars. What makes this press unique is the fact that it is capable of printing multi-colored stamps, up to three colors, in one operation from a single engraved

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The Roosevelt Centennial

By HERMANN HAGEDORN

*Director,
Theodore Roosevelt Centennial
Commission*

Theodore Roosevelt's conservation policies covered a wide area, including mineral resources, soil preservation, water power, and the reclamation of arid land. But he dramatized the idea of conservation and caught the public imagination, mainly in terms of the forests of the nation. The average citizen might have difficulty visualizing minerals hidden thousands of feet underground, or the light and power that rushing waters might generate; but he saw trees all about him and could conceive forests and the cost to the nation of reckless hewers and slashers, intent on the day's profit, without concern for tomorrow's lack.

Mr. Roosevelt's campaign for conservation made the American people conscious of three things: the imminent danger to the resources on which the nation's life ultimately depended; the fact that those resources belonged of right not merely to those who held title to the land in which the resources lay or out of which they developed, but to every American man, woman and child; and the need of the people not only to guard what was theirs for the sake of their children and children's children, but to use it productively for the public good.

Laws now curb the wasters and despoilers, but no law can reach the tendency of men to chisel what they can out of the national treasure when its guardians are looking the other way.

The nation is in debt to such organizations as The American Forestry Association that keep the public mind alert to the danger.



Washington



Lookout

By ALBERT G. HALL

LAURANCE S. ROCKEFELLER, president of Rockefeller Brothers, Inc., and a founder of the Conservation Foundation, has been named chairman of the Outdoor Recreation Resources Review Commission. Other citizen members named to the committee at Newport, R. I. by President Eisenhower are: Dr. S. T. Dana, of Ann Arbor, Michigan, director of AFA's current land ownership studies and a life member of AFA; Mrs. Katharine Jackson Lee, of Peterborough, New Hampshire, a director of AFA; Bernard L. Orell, of Tacoma, Washington, vice president of the Weyerhaeuser Timber Company and an honorary vice president of AFA; Joseph W. Penfold, Washington, D.C., national conservation director of the Izaak Walton League; M. Frederik Smith, of Short Hills, N. J., vice president of the Prudential Life Insurance Company; and Chester S. Wilson, of Stillwater, Minn., former Minnesota Conservation Commissioner, well-known conservation and water attorney, and a member of AFA.

EIGHT CONGRESSIONAL MEMBERS of the commission previously named are: Senators Anderson (New Mexico), Barrett (Wyoming), Neuberger (Oregon), Watkins (Utah), and Representatives Pfof (Idaho), Rhodes (Arizona), Saylor (Pennsylvania), and Ullman (Oregon). The new commission will appoint an Executive Secretary and such other personnel as may be necessary. Each federal agency with an interest in recreation will appoint a liaison officer to work with the commission. An advisory council of 25 members will assist the commission. These people will represent state, municipal, and private interests in all phases of outdoor recreation. The charge of the commission is to "...set in motion a nationwide inventory and evaluation of outdoor recreation resources and opportunities..." and it must submit its report by September 1, 1961.

THE NATIONAL OUTDOOR RECREATION RESOURCES REVIEW COMMISSION was authorized (Public Law 85-470), and a token appropriation was granted in a supplemental bill so that studies of recreation potentials and goals for the years 1976 and 2000 can be reported to the Congress by September 1, 1961. It is believed that this study, which will extend to both public and private lands, may forestall precipitous action on such controversial proposals as the wilderness legislation, and will provide a basis for orderly planning of recreational developments.

HEARINGS ON PROPOSED WILDERNESS LEGISLATION will be held by the Senate Committee on Interior and Insular Affairs in November. The schedule includes Bend, Oregon, November 7; San Francisco, California, November 10; Salt Lake City, Utah, November 12; and Albuquerque, New Mexico, November 14. At hearings held in Washington, D. C. this year, opponents of the measure designed to establish a national wilderness preservation system suggested that hearings be held in the areas which might be economically affected by a program which would preclude multiple-use management of large areas of public lands. Several bills have been considered over the past two years, and the proponents have revised them somewhat to overcome some of the objections. No action was taken by the Senate or House during the 85th Congress, other than committee hearings. The field hearings now scheduled will probably result in further revisions and a series of new bills in the 86th Congress.

A NEW UNDER-SECRETARY OF THE INTERIOR has been named by President Eisenhower. Elmer F. Bennett has been given a recess appointment to succeed O. Hatfield Chilson as Under-Secretary in charge of public land management. Bennett has been solicitor

(Continued on next page)

of the Department of the Interior since early last year, and has been with the department since 1953. His appointment is subject to Senate confirmation when Congress convenes in January. Chilson, who has served as Under-Secretary for the past two years, has resigned to re-enter private law practice in Colorado.

THE 85th CONGRESS MADE INCONSPICUOUS BUT SOLID ADVANCES IN FEDERAL CONSERVATION ACTIVITIES. It provided record appropriations for federal land management activities and for basic research in forestry and related fields for fiscal years 1958 and 1959. With few exceptions budget requests for conservation activities were met, and in some cases were exceeded for activities designed to develop the federal estate of national forests, public domain, national parks, Indian lands, and other public areas. State and private cooperative programs of the U.S. Forest Service, with the exception of tree planting activities under the Clarke-McNary Act, were maintained. A reduction of \$1 million in federal assistance to the state forest tree nursery program had been recommended in the budget; the Congress settled for a reduction of \$500,000 for fiscal year 1959.

WHOLESALE MILITARY LAND WITHDRAWALS WERE CURTAILED by passage of Public Law 85-337 requiring Congressional approval of withdrawals, reservations, or restrictions of more than 5,000 acres of public lands for military purposes. The act also provides for multiple-use management of such lands as are reserved. Principal support for this measure came from wildlife and recreation groups, with backing from forestry organizations and interests.

DISPOSAL OF INDIAN TIMBER ASSETS HAS BEEN DELAYED on two reservations scheduled for release from federal jurisdiction and trusteeship. The Menominee Indians have been permitted (Public Law 85-488) to defer until February of next year submission of their plan for management of their reservation in Wisconsin; and final termination of federal administration of that tribe has been set for December 31, 1960. The controversial Klamath termination act has been twice amended, the most recent change (Public Law 85-731) providing in the alternative for federal or private acquisition of the Klamath timber lands in Oregon, and requiring sustained-yield management of the timber areas by private purchasers. As in the case of the Menominees, final termination dates were extended into 1961, and sales of Klamath assets have been put off until April of next year.

ALASKA HAS BEEN GRANTED STATEHOOD (Public Law 85-508), and all that stands between a 48 and a 49-star flag is the formal acceptance of statehood by the people of the territory. The new state will be granted 102.5 million acres of public lands to be utilized in its economic growth. These lands may be retained in state ownership or sold. Wildlife administration in Alaska will remain temporarily under federal government, until the Secretary of the Interior certifies to Congress that appropriate action has been taken by the Alaska State Legislature to assure the handling of wildlife resources in the public interest.

RESEARCH ON THE EFFECTS OF PESTICIDES has been authorized (Public Law 85-582) and an appropriation of \$125,000 has been granted to the Department of the Interior to begin continuing studies of insecticides, herbicides, and fungicides. The purpose is to determine their effects on wildlife, and to recommend formulations and dosages that will permit chemical controls of pests with minimum damage to wildlife. The act authorizes \$280,000 annually for this work, which the Congress agrees is probably insufficient funding. In allowing this amount, Congress indicated that it would be willing to make such increases as may later be justified.

FEDERAL CONTRIBUTIONS TO SCIENTIFIC RESEARCH with no strings attached will be permitted under Public Law 85-934. The measure allows federal agencies to make grants to institutions of higher learning and to other non-profit organizations without further obligation by such organizations to the federal government.

CORRECTIONS: In reporting on last-minute actions of the Congress in the September column, we anticipated, erroneously, the passage of two bills. To correct the record: the Great Lakes Basin Compact was not authorized, although it had passed the Senate and was reported favorably by the House Committee on Foreign Affairs. Also, use of payments in lieu of taxes was not broadened to include use for general governmental expenditures by the recipient counties. The measure passed the House, but was not acted on by the Senate.

Citizen members of Outdoor Recreation Resources Review Commission sworn in at the White House. Left, Chester S. Wilson, Bernard L. Orell, Joseph W. Penfold, M. Frederik Smith, Mrs. Katharine Jackson Lee, Laurance S. Rockefeller, and Samuel T. Dana. Eight congressional members were also appointed to commission.



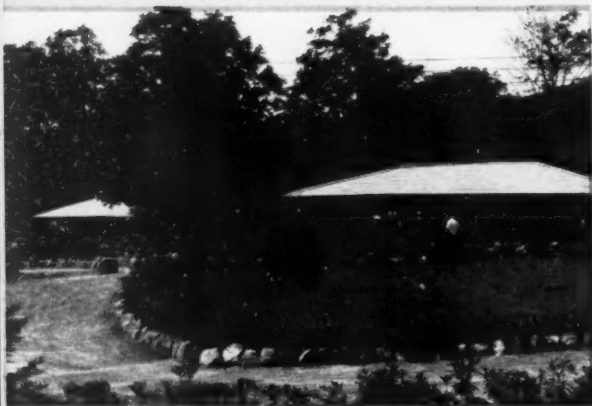
An Opportunity to Serve America

RECREATION promotes health and health means strong people upon which the future of our nation depends. Our recreation resources are as much a part of our national resources as are our minerals, our fuels and our forests.

The increasing pressures of our rising population, our need for healthful exercise and recreation, necessarily call for an increase in our existing recreational facilities.

We must learn to plan effectively for the use of the recreation resources of our great outdoors. Boating, fishing, camping, hiking, skiing and hundreds of other recreational opportunities can and must be wisely developed so that present and future generations of Americans can more fully enjoy their own country.

The members of the Outdoor Recreation Resources Review Commission, under the chairmanship of Laurance Rockefeller, are competent, dedicated individuals who, in the past, have given unselfishly of their time to many of these purposes. I am confident that their new work will result in the advancement of the welfare of all of us.—PRESIDENT EISENHOWER



Object of trailside museum in New York State's Bear Mountain Park was to provide living exhibits indoors

Living M

PREACHING, publishing, and prosecution are three ways of emphasizing the vital necessity for resource conservation thinking and practice. But—there are other ways. For the past forty years, we have endeavored to develop methods for helping the public gain useful and accurately informed attitudes about soil and water and wildlife and plant life conservation. We believe that one of the most interesting and

effective means of telling the conservation story is to provide the people of America with opportunities for out-of-door visual and tactile acquaintance with the actual objects in need of protection. Our concern with this type of exposition has grown not only with the years but with the amazing possibilities that led us first into New York State's Bear Mountain Park and from there to the broad deserts of Arizona and

the colored cliffs of New Mexico.

Our first memorable experience in the field was in connection with our employment by the Boy Scouts of America in New York's wooded Bear Mountain State Park in the late 'teens and early 'twenties. A total of some twenty thousand Boy Scouts from greater New York City and northern New Jersey occupied individual council camps about the shores of three beautiful lakes in the

Trailside museum naturalist tries to "educate" a group of recreation seekers on the habits of reptiles at Bear Mountain Park's snake pit. Interrelationship of plants and animals is also emphasized



Museums

By WILLIAM H. CARR

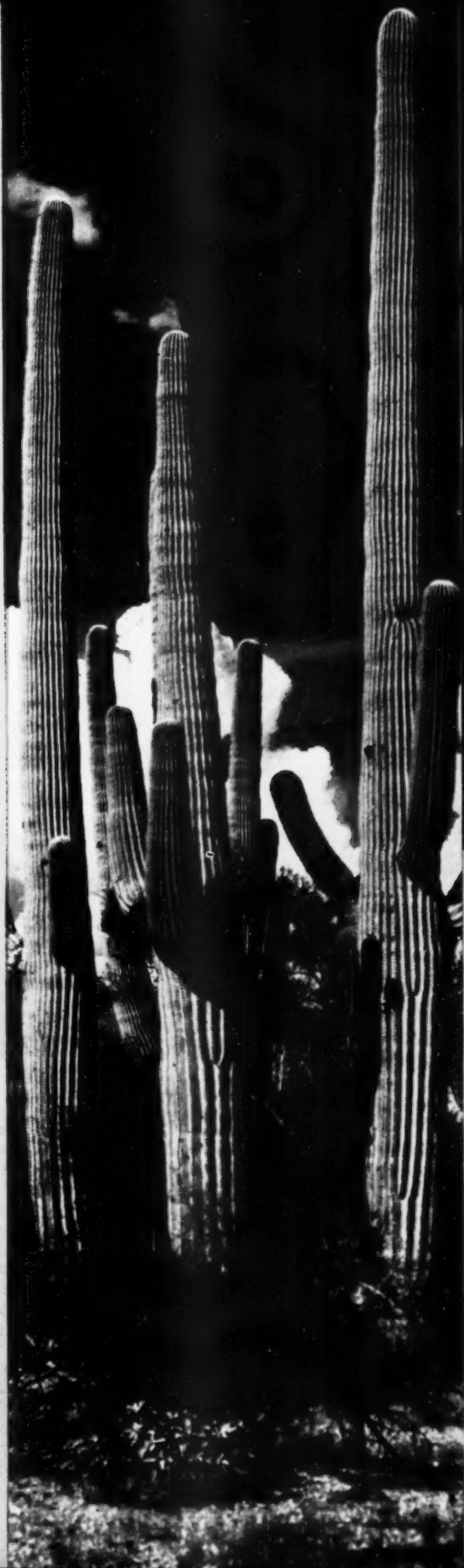


William H. Carr

park interior. Here, under the inspired guidance of Benjamin T. B. Hyde, we helped to build a large indoor and outdoor museum to expose boys and their leaders to birds, mammals, amphibians, reptiles, fish, insects, and plants. The idea was that everyday familiarity with these living forms might lead to a better understanding of the world of nature and a desire to know more about that world. The idea was sound. The program was eventually successful, although a great deal of missionary and pioneering work had to be accomplished initially.

Every morning we led dawn bird hikes, lectured in the camps with living specimens, milked rattlesnakes and copperheads for the edification of many, carried tame skunks and raccoons and hawks and crows about with us, published a weekly nature magazine, and encouraged each camp to build its own nature center. Badges in the shape of a tulip tree leaf were given to interested, participating, and proficient Scouts in addition to their own official awards. The idea spread to other sections of the park and to other states. The Girl Scouts maintained nature shelters, and finally the Park Commission built and staffed museums in all the major camping areas of the reservation, enabling thousands of young people to return home with far more than an offhand acquaintance with the forests of the Hudson Highlands and their wild inhabitants. Best of all, this acquaintance led to appreciation, and appreciation is an excellent start for conservation education.

It was a usual sight to see children from the streets of Manhattan carrying live salamanders, turtles, and harmless snakes. In fact, we had to inspect baggage to make certain that



none of these creatures left the park at the end of the camping season. Many of these youngsters became collectors, especially of interesting rocks and minerals of the region; there were leaf collections, pressed flower collections, and others. There was no killing. It was not the "thing to do." There was no land clearing or similar activity that would cause erosion or water pollution. Thousands of seedling trees and shrubs were planted by the Scouts. The campers learned the whys and wherefores relating to conservation attitudes and practices. Not a tree was cut down without a previous inspection by a trained forester, and campers were well informed of the practical as well as the esthetic reasons for this and similar procedures.

For two seasons, we operated our

he picked up caterpillars, placed them in screened boxes, learned what food they preferred, and watched them through the various processes of becoming moths.

These boys learned through personal experience and effort something of the life and lore of the country and produced tangible displays to prove it. They lived in the woods for all-too-brief summers and became part of their environment to the extent that they gained knowledge of it, slept beneath its trees, swam in its streams, and followed its trails. They did not bring urban forms of amusements or "time killers" with them. The river, brooks, pastures, and forests provided all the recreation and activity needed. They never "ran out of" something to do. There were even

south of the West Point Military Academy, we spent the major part of eighteen years establishing the Bear Mountain Trailside Museum, Nature Trails, and Zoo. Funds for this undertaking were originally provided by the Laura Spellman Rockefeller Foundation and the American Museum.

Here was a challenge. It was our aim to build nature trails and outdoor museums to "educate" the recreation-seeking New Yorkers of all ages, nationalities, and backgrounds who were present in the park for a few hours only. Was it possible? We thought so. These same people had easy access to the endlessly fascinating halls of the American Museum of Natural History and the wonders of the Bronx Zoo and Botanical Gardens, to say



own private boy's camp in the northern Adirondacks of New York, on the shores of the St. Regis River in St. Lawrence County. Once again an outdoor museum, built in and around a hundred-year-old hay barn, was the focal point of camp activity programs. Boys brought frogs, toads, minerals, tree seeds, and other objects obtained on overnight camping trips and daytime explorations. They used a small but well-thumbed shelf of books to identify and learn about their collections and built exhibits in the barn on rainy days. One boy kept an insect net busy and mounted his specimens, all properly named, under glass. Furthermore,

apple trees to be pruned. We had spent the summers of our early boyhood in the same delightful region. We loved it, never had enough of it, and we passed this appreciation and regard on to the boys as best we could.

Our great opportunity to reach large masses of people came in 1926 when we were employed by the American Museum of Natural History to develop outdoor museums, from scratch, in an area fronting the Hudson River in Bear Mountain Park's principal public-use area where thousands of visitors came daily from New York City and environs. At this location, five miles

nothing of other zoos, aquariums, and gardens in and about New York City. Obviously, what we needed was something entirely different, and we set about to provide it.

Our objectives were the same as they always have been, namely to build living exhibits indoors, to label and otherwise indicate natural objects outdoors, and to interpret them in such a manner that visitors would learn, in as unique and painless a fashion as we could contrive, far more than mere names. We endeavored to make a connected and continued story of it all, to relate plants and animals to each other and to man, to indicate that all of

nature is interrelated in some degree. We also pounded home the fact that the present and future welfare of all life forms was in the hands of the taxpayer and voter.

In all of this effort, the institution and the foundation that supported us gave us a free hand and aided in numerous ways. Never did the sponsoring foundation ask the impossible, either in regard to time limits, fund withholding, or other inspiration-killing types of procedure. As a result, we were able to keep costs down, secure the cooperation of other organizations, and work ten hours a day, seven days a week without undue fatigue or regret.

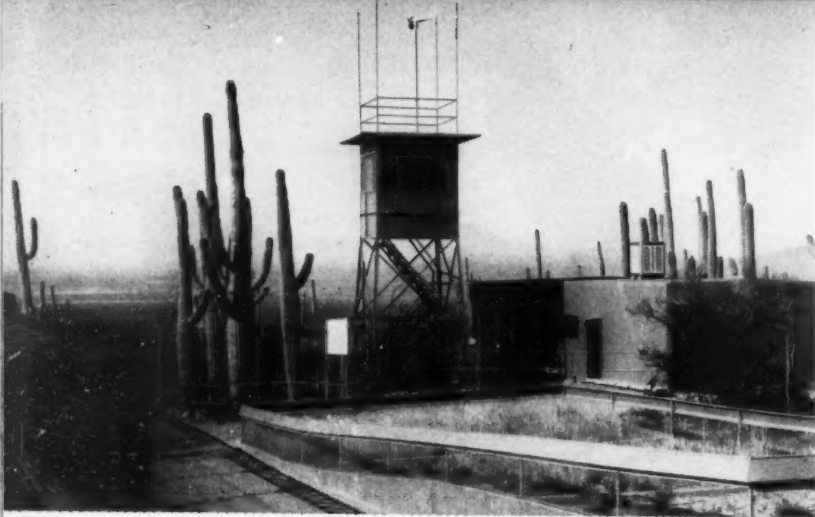
Simplicity was our keynote from the beginning; simplicity of conception, of labelling, and of over-all



presentation of each subject, from soil exhibits to bird identification. Speaking of the latter, we used balsa wood to carve twelve common birds, ranging from the busy house wren to the sprightly blue jay. The carvings were accurate as to size and color markings. We placed them in trees along the nature trails. Labels beside the trail indicated with an arrow the location of the wooden bird in the tree, giving its identifying points and information on its habits. The birds were realistic and visitors were interested. The idea was to encourage the label reader to look for wild birds which were numerous in the area, and to

Photographs from left to right:

1. Feature of Arizona-Sonora Desert Museum is small animal and reptile room.
2. A kit fox peers at visitors from his den in the tunnel of the Desert Museum.
3. Group leaves museum en route to animal enclosures along nature trail.
4. Labels for museum's exhibits are designed to instruct and stimulate interest.
5. Youngster is fascinated by ringtail cat hiding in the "cave rock formation."
6. "Goofy the Gopher" exhibited on the museum's patio, delights children.



Desert Museum's Watershed Exposition will officially open during AFA's meeting

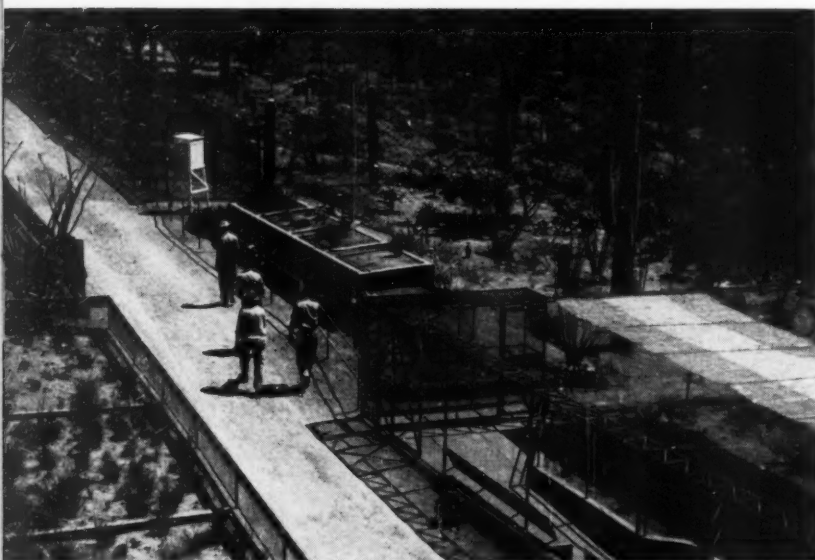


Exhibit includes plots constructed by the Forest Service, S.C.S., and Univ. of Ariz.

Visitors may ask questions into "mikes" and hear answers over loud speaker system



recognize them if possible. The last sign on the bird trail presented an invitation to visit the next trailside museum building and ask for a bird book. A number of people took advantage of this opportunity. This exhibit technique was typical of many other kinds of presentations along the trails and indoors. The museum buildings, incidentally, were considered only a means to an end, and not an end in themselves. We called them "covered trails" and stated that the only excuse for having them was to display and protect objects which could not be safely placed outdoors because of possible weather damage or vandalism.

Now, some 30 years after we had the privilege of developing these interpretive devices, laying out winding trails and building exhibits to teach as well as show, we have the satisfaction of knowing that some of the ideas are still in use in places where organizations, such as the National Audubon Society and the Boy Scouts of America, are building real nature trails in their outdoor educational and camping centers.

Unfortunately, the brown trails, threading through the oak and maple woods on the plateau above the Hudson at Bear Mountain, are no more. In their place broad, black macadam roads have been constructed to connect the various trailside museum units and animal cages, following not the most interesting route but the shortest and most direct. In place of the little pond with its glacial clay bed, where once we kept beaver and told the story of glacial clay varves and of life in the pond, there is now an enormous concrete bear pit. Gone is the idea of simply-labelled trails with the little signs changed frequently, with "do-it-yourself" interpretive devices to be handled by the visitor as he walked along. In their place is a very nice little zoo.

The labels on the paths are very well done physically, but lack the information and informality, the direct person-to-person appeal, of the ones long gone. Mounted birds, cold and glassy-eyed, now face the visitor in one of the buildings that formerly housed living wildflowers and similar displays. The philosophy and psychology behind the original trailside idea is no longer in effect. Possibly the new, formalized exhibits and paved paths are now appropriate and in keeping with the great park's general development at the hands of untrammelled engineers rather than the well-advised en-

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Arthur N. Pack

A Pioneer's Pioneer

By ARTHUR KINGSTON

ARTHUR N. Pack of Tucson, Arizona, has looked at much of America from cabins of various self-piloted airplanes over a period of many years. In the early 'thirties he flew his own plane from his home in Princeton, New Jersey, to New Mexico and acquired a 20,000-acre cattle ranch, then left the East, moved to the ranch house, built other accommodations, and settled down in one of the most beautiful sections of the West.

Prior to this move he had graduated from Williams College, attended the Harvard School of Business Administration and had then served a stint in Europe as an Army Captain in the first World War. Returning to America, he helped his father organize the American Nature Association and served as editor of *Nature Magazine*, gaining his initial and continuing interest in natural resource conservation along the way.

Later he became a leading spirit in encouraging his father to establish the Charles Lathrop Pack Forestry Foundation, of which he is now president. He was also active in founding the American Tree Association. The Pack Foundation, among other accomplishments, has been responsible for a long list of books and pamphlets on trees, forestry, and conservation; the creation of permanent roadside demonstration forests at Warrensburg, New York, and on the approach to Mt. Rainier National Park, Washington; and grants-in-aid or fellowships to college and university students in every section of the United States. In addition, the foundation has played an important part in the development of resource conservation in South America, Mexico, and the Caribbean. Arthur N. Pack has been associated with these enterprises since their inception.

He flew to Tucson and commenced to build a fine resort hotel in 1941, moving to Arizona in 1947 to live permanently at this establishment, the Ghost Ranch Lodge, named for his New Mexico holdings, the Ghost Ranch. In this same year, through the Evangelical United Brethren Church, he gave a fine hospital to the town of Espanola, New Mexico, and is still chairman of the board.

In 1955, he presented his ranch to the Board of Christian Education, Presbyterian Church, USA, to be used as a national retreat and education center for thousands of adults and children, and a study center for ministers; and, incidentally, for the

building of a trailside museum and watershed conservation exposition, to be used alike for the ranch occupants and the general public.

The word "leader" can be applied to Mr. Pack more than to most men. In the past few years he has been president or chairman of the board of many organizations, ranging from the Tucson YMCA, the United Community Campaign, Mayor's Committee on Human Relations, Pima County, Arizona Parks and Recreation Committee, to the ANP Airpilots, Inc., a business devoted to airplane charter service and the building of the new Freeway Airport in Tucson for private and executive planes.

An outstanding Christian, Mr. Pack, in addition to having been Elder-President, Board of Trustees of the Tucson Mountain View Presbyterian Church, is also a member of the General Board, National Churches of Christ; a member of the Board of Trustees of (Presbyterian) Trinity University, San Antonio, Texas, and in 1958 received the Regional Award of the National Conference of Christians and Jews.

He is president and organizer of the Arizona-Sonora Desert Museum in Tucson, a unique natural history and resource conservation institution which, in its first six years, has been visited by more than a million people. It was only through Mr. Pack's "selling" efforts and his large gift that the museum was originally built. Recently, a grant from the Pack Foundation made possible the construction of an extensive watershed conservation exposition at this museum, designed to inform the public of serious water problems in the Southwest. In 1958, he made possible three large foundation grants to establish Watershed Management and Educational Departments at the Universities of Arizona and New Mexico and Colorado State.

In 1952, Mr. Pack was elected "Man of the Year" in Tucson. Actually, he has been a "man of the year" in many places, and for a long time in connection with numerous undertakings, ranging from being a member of the Board of Directors of Arizona State Juvenile Institutions to a referee in the Juvenile Court of Pima County, Arizona. But there we go again. Suffice it to say that the sandy-haired, blue-eyed subject of this account, born in Cleveland, Ohio, in 1893, has been a pioneer in diverse fields of en-

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OTEL
ONEER



TUCSON

A modern, prosperous city, heir to a colorful past

By ANNETTE RICHARDS PARENT

STEEPED in peaceful Hohokam, Pima and Papago culture, settled by Spanish and Mexican conquistadors and padres, and raided by the warlike Chiricahua Apaches, the prosperous Tucson of today is heir to a richly colorful past which lends distinctive atmosphere to one of America's most modern, fast-growing cities. Adobe or red brick homes are landscaped with some of the 1500 varieties of cactus. Their owners may wear ten gallon hats, cowboy boots, frontier pants, bola ties or bright squaw dresses with handsome Indian jewelry during the annual Fiesta de los Vaqueros with its kangaroo court, mammoth parade and rodeo—and be completely conservative in dress at other times.

With an estimated population of 250,000 for the metropolitan area, mañana blends with today and yesterday in a pleasantly leisurely way. "Tucson" came from the Pima words meaning "Place Where the Water is Dark" or "Land of the Dark Spring." To date, it has been blessed with an abundance of ground-water. In the foreseeable future, agriculture, which consumes 75 per cent of the water now, may have to give way to domestic and commercial use. The water needed for one acre of cotton has been said to provide all living requirements for at least twenty people.

Father Eusebio Francisco Kino visited the Old Pueblo in the late 17th Century to establish the beautiful San Xavier del Bac, the White Dove of the Desert, the northernmost of his string of missions in Pimeria Alta. His inspired efforts were overshadowed for more than two centuries in this important crossroads of the west by gamblers, horse-thieves, murderers, rapists, drunkards and highwaymen.

Located at an elevation of 2410 feet on the Santa Cruz River, a tributary of the Gila River, Tucson was the only southern route to California. Never caught up in the boom town-ghost town cycle, it grew steadily though slowly. The only walled city America ever knew, this legal no-man's land drew the scum and riffraff of both East and West aided and abetted by the California Vigilance Committee and the Texas Rangers—in the nineteenth century. "Literally a paradise of devils," its parched adobe walls, broken corrals, and dilapidated saloons contained

no American woman resident until 1870.

Four flags have flown over the city—Spanish, Mexican, Confederate and the Stars and Stripes. Its Spanish heritage is still strong. Signs in downtown stores reading "Aceptamos moneda mexicana" and "Hablamos español" are common, while the sound of spoken Spanish is ordinary. Even the most casual visitor picks up a few Mexican phrases. Sonoran license plates go unnoticed. Geographically, climatically, culturally and historically, the Lower Sonoran Desert knows no boundary.

Tucsonians regard Punta Peñasco and Guaymas fishing grounds as their natural vacation spots. Many make regular forays into Mexico. Bullfights and curios at Nogales sixty-five miles south towards the headwaters of the Santa Cruz lure thousands each year. Mexico's scenic West Coast Highway starts at Nogales.

While it has always existed, renewed interest in and development

of this mutual culture has received marked impetus since 1950, when the Tucson Festival Society was formed. The guiding light of the revival has been a modest but dedicated woman, Murial Thayer Painter. The impressive Yaqui, Papago, and Spanish pageant at San Xavier in the spring and winter, the Fiesta de la Placita in the spring, and Las Posadas procession of school children in Ash Alley at Christmas all give to Tucson a special charm which did not exist a decade ago.

A new Arizona-Sonora Cooperative Project seeks to promote cultural, scientific, and recreational exchanges with Sonoran neighbors. Immigration restrictions have been eased to a marked degree to permit students, scientists, and shoppers to cross the border with minimum delay. Even quarantine regulations were waived in a recent trip to Hermosillo by the Arizona-Sonora Desert Museum's Desert Ark with its air-conditioned stationwagon-load of native wild animals.

Of the thousands of visitors that pour into Tucson every month, about 1200 decide to remain permanently in this "Sunshine City of the Desert"





Through an interpreter, an entertaining and informative program was presented to some 2500 Mexican children.


Southern Arizona's economics have been nutshellled into the four C's—copper, climate, cattle, and cotton. Mining, agriculture, and health are keys to its well-being. But in Tucson itself, manufacturing is the main source of livelihood, with Hughes Aircraft and Douglas Aircraft having the largest payrolls. Many other small shops are scattered through the city. Davis-Monthan Air Force Base, one of the largest in the country, employs some 22,000 civilian and military personnel. The eighty-four out of every hundred daylight hours with sunshine each year explain why Tucson is an air and electronics center. Its municipal airport runway, when completed next year, will be the longest civil air runway in America. Three airlines, a transcontinental railroad, and several bus lines service the city. There are seven radio stations (one in Spanish), three television channels, and two daily papers.

Sunshine also brings the "winter visitors," who often decide to move in permanently. A score of guest ranches offer swimming, shuffleboard, horseback riding, sunning,

Sabino Canyon's runoff varies with seasons, ranging from no water to flooding torrents

World-famed Tucson Boys Chorus sings against backdrop of adobe church in Old Tucson and Golden Gate Mountain in Tucson Mts.





Salute to Arizona

PHOTOGRAPHS BY
JOSEF MUENCH
AND GENE MORRIS

Arizona is a state of great color and variety. From the desert floor to the summit of the Coronado National Forest a motorist moves through six growth transition stages in a matter of minutes. *American Forests* presents the following color pages, plus those between pages 56 and 57, as its salute to this great state. If readers express interest in this feature, it is possible that this type of coverage could become a regular feature in our magazine. With recreational activity in the out-of-doors booming as never before in our history, our hope would be to acquaint readers more thoroughly with the breadth of beauty presented by our forests and parks and the recreational outlets they afford.



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and barbecues. About 1200 people a month pour into Tucson—to stay. One of the Old Pueblo's most marked characteristics is its phenomenal growth. The mushrooming of subdivisions, schools, shopping centers, and churches, and the new skyline of the face-lifted downtown area, have been nothing short of astounding.

Culturally, Tucson has three museums, its own symphony orchestra, the world famous Tucson Boys Chorus, the Tucson Boys Band, two libraries, three separately-sponsored concert series each winter, a civic art center and a dozen private galleries, a civic chorus, two little theater groups, and a children's theater. There are active clubs for rock hounds, photographers, writers, gardeners, square dancers, sportsmen, and bird watchers. The Sunday Evening Forum, the largest community forum in the United States, brings top lecturers, actors, and travelogists to town.

The cultural core is the hundred-acre, seventy-year-old University of Arizona. Dr. Andrew Ellicott Douglass, director of its Laboratory of Tree-Ring Research, pioneered in the science of dendrochronology. The late Dr. Edmund Schulman, Assistant Professor of Dendrochronology, with his assistant, C. W. Ferguson, Jr., made a significant discovery in the Inyo National Forest in the White Mountains of East Central California in 1956. He found that the bristlecone pine there was four thousand years old, having a thousand-year seniority over the hitherto oldest-living-thing record bearers, the giant sequoias of California. Regional indices based on about one-third million annual rings in trees sampled during the past seventeen years present a fair approximation of fluctuations of rainfall in the upper basins of all major streams of the western United States. Studies reveal that the drought of recent decades in the Southwest—beginning in southern Arizona in 1921—is apparently the most severe over-all drought southern Arizona has experienced in seven hundred years.

The University's Institute of Atmospheric Physics is gaining fundamental knowledge of the weather and climate of Arizona. Working closely with other departments under a Rockefeller grant, an arid lands study program has been developed to solve the critical problems of the dry regions of the world. Also this year, the university has focused its geochronology research in a new



The White Dove of the Desert, San Xavier del Bac, is one of finest old Spanish missions, built in the late 17th Century by Father Eusebio Francisco Kino

Colossal Cave, with a history of a spectacular robbery and escape through its labyrinth, lures visitors



laboratory, thus bringing its astronomers, chemists, geologists, paleontologists, archaeologists, meteorologists, and dendrochronologists together on one site for the first time.

Dr. Emil W. Haury, head of the Department of Anthropology, director of the Arizona State Museum, and recently president of the American Anthropology Association, is one of the leading authorities on Southwest archaeology, and has participated in many top level world symposiums. The Arizona State Museum, which includes some of

the finest collections of artifacts of the Southwest, has made the University of Arizona a world center for the study of Southwestern archaeology. The Ventana Cave, dug a few years ago, brought evidence of human life in a once-lush southern Arizona some 10,000 years ago.

The campus is beautifully landscaped with olives, palms, eucalyptus, oleander, and bird of paradise. The original fruitless mulberry was given to the university by its developer, Judge Samuel Latta Kingman. For many years, the College of Mines



Central exhibit in main room of the Arizona State Museum is a cross-section of a California sequoia which grew between 212 and 915 A.D. Dr. Andrew E. Douglass, director, Tree-Ring Research Laboratory, founded the science of dendrochronology



The Arizona-Sonora Desert Museum, which houses desert plants, animals, birds, fish and rocks is one of Tucson's most popular attractions. Built six years ago with help of the Pack Foundation, museum has been visited by over a million people

has not only sent graduates throughout the world, but also its pilot mill has run samples on nearly every important mine in the Southwest. The 36-inch reflecting telescope of the Steward Observatory is one of the large telescopes of the world. The Cotton Research Station has enabled Arizona to lead the nation

with a yield of 1100 pounds of cotton per acre and to become one of the top five cotton states in total production. Valuable Renaissance masterpieces from the Samuel H. Kress Foundation and modern art from the Gallagher Collection bring visitors from afar to the new Fine Arts Center. The cultural and so-

cial interchange between the city's church members and the students from forty-three foreign countries is outstanding.

Three important outlying scientific institutions should be mentioned. To the east, the Southwestern Research Station of the American Museum of Natural History was established in 1955 in spectacular Cave Creek on the eastern slope of the Chiricahua Mountains. Its purpose is to make research facilities available for scientists and students in all branches of science who have problems that can be investigated through the utilization of the floral, faunal and geological features of the area. To the south, the U.S. Forest Service's Santa Rita Experimental Range, started in 1903, is the oldest experimental range in the country, lying on the western slopes of the Santa Rita Mountains. Fifty thousand acres of typical semi-desert, mixed grass and shrub range lands of the Southwest vary in elevation from 2900 to 4500 feet. To the west, in the 2½ million acre Papago Indian Reservation in the Quinlan Mountains, the National Science Foundation is sponsoring the Association of Universities for Research in Astronomy in its astronomical installations on top of 6870 foot Kitt Peak. The six universities belonging to AURA are building a series of small observatories in anticipation of the eventual construction of a national astronomical observatory.

Tucson is ringed with mountains, the Santa Catalinas to the north, the Rincons to the east, the Santa Ritas to the south, and the Tucsons to the west. In the ruggedly towering Santa Catalinas, Mt. Lemmon with its 9185 foot altitude is only forty miles from town, while Sabino and Bear Canyons below offer delightful nearby playgrounds. Saguaro National Monument in the Rincons, with its five life zones, extends from the desert floor to the aspens and spruce. Beyond it is Colossal Cave. Madera Canyon in the Santa Ritas beckons to hikers, picnickers, campers, and summer residents. Tucson Mountain Park with its 28,000 acres is the largest county park in the nation and contains the thickest known stand of saguaros.

On the western slope of the Tucson Mountains is Old Tucson, an adobe and frame original movie set now administered by the Jaycees with Old Tucson Daze, square dance festivals, western flavor, and novelty shops—and frequently closed to the

(Turn to page 62)

"... And the Truth Shall Make You Free"

Especially from Fear

By NATIE and HAL GRAS

ONE word represents a major obstacle to your happiness, no matter where you live. Do you know that word?"

This introductory statement is designed to set the mood for the wildlife educational programs presented by the Arizona-Sonora Desert Museum of Tucson, Arizona. Traveling in a station wagon dubbed the Desert Ark and using semi-tame wild animals native to the Southwest, Museum personnel have entertained and informed more than 106,000 persons through the 750 programs that have been given since the experiment was started in the early spring of 1956.

Audiences range from pre-school groups to members of the local Golden Age Club; from guests at Arizona resort hotels to patients in neuro-psychiatric wards of a Veterans Hospital; from regular and special education students in our public school system to teacher candidates at the University of Sonora in Hermosillo, Sonora, Mexico. All programs serve as an extension of the ideals and purposes of the *living* Desert Museum founded in 1952 by William H. Carr to promote a basic interest in conservation, and fi-

nanced by the Charles Lathrop Pack Foundation and the American Nature Association of Washington, D.C.

Regardless of the age, social or economic level of the audience, one idea, based on three key words, is stressed. The object? To help all people have more happiness in life through a fuller enjoyment of our natural and wildlife resources.

The answer to the opening question is the first of the three key words—*Fear*. Assuming that the audience is an elementary school assembly, the museum representative leads students to determine the word for themselves, somewhat as follows:

"If you feared, or were afraid, the roof here would cave in, could you

Two-week-old mountain lioness receives daily ration from Mrs. Natie Gras, animal-nursery keeper for Desert Museum



be happy? If you feared the chair in which you are sitting would collapse, could you be happy? If you feared the person seated next to you, could you be happy?"

After answering "No," the youngsters then repeat the word *Fear*—the obstacle to happiness under the assumed circumstances. Fear is explained as an attitude anyone is capable of having toward anything, animate or inanimate.

The second key word is suggested as an alternative to fear. Using the same suppositions, the students determine this second word for themselves also.

"If you respected the judgment of your principals and teachers that the

roof will hold up, could you be happy? If you respected the ability of the person or company that constructed your chair, could you be happy? If you respected the person seated next to you, could you be happy?"

The youngsters answer "Yes" and conclude correctly that the second key word is *Respect*. It is then explained that we can choose between two attitudes, but that the choice of respect instead of fear usually requires a conscious act represented by the third key word, *Learning*.

Hence there evolves the one idea designed to promote greater happiness: "One of the best ways to

change fear to respect is by learning the true facts."

That idea may seem sound, or look good on paper, but further proof is usually necessary before present-day audiences will "buy" this theoretical happiness pill. The following three areas of reference are suggested, with the students providing for themselves the answers (in parentheses).

In the matter of people: "Suppose an extremely tall neighbor moves next door to you. You are a little shaver and he looks down at you. You look up at him and you say to yourself, 'Holy smoke! This fellow could really clobber me.' What is the basis for your concern? (Fear) Can you enjoy his company while



Desert Ark's most famous graduate is a mountain lioness who seems to enjoy posing for publicity pictures



From perches in the modern-day Ark, four conditioned crew members are ready to perform at another wildlife program

Hal Gras notes mixed emotions as he shows "Charley," the five-foot gopher snake, to a group of youngsters



"Clorophil" teaches children that any animal might instinctively bite out at smell of food by snapping at marshmallow



you fear him? (No) As you get to know him, you notice he puts his shoes on one at a time as you do and that he's just another human being. What are you doing? (Learning true facts) What does this knowledge permit? (Respect) So if you respect him as another human being, can you enjoy his company? (Yes)"

In the matter of natural phenomena: "Where do some small youngsters go when lightning flashes? (Under the bed) Why? (Because of fear) Are they happy, under the circumstances, under the bed? (No) How many of you older youngsters stand at the window and enjoy lightning because it can be beautiful? (Many raise their hands)

What's the difference between the small youngsters who fear and hide and are unhappy, and you older youngsters who stand at the window and enjoy lightning? (They fear; we respect) How did this come about?

(We learned it won't hurt us) Is that always a true fact? (No) Would it be true to say that lightning will hurt you just as much under the bed as it will in front of the window, so you might as well enjoy it? (Yes) Would you stand in water or under a tree during a lightning storm? (No) Why? (Because that could attract lightning) What have you learned then? (To respect lightning)"

In the matter of animals: "What do some people do when they see a

mouse? (Jump on a chair and scream) Why? (Because they are afraid) Let's make believe a mouse enters this auditorium, that he walks across the stage but doesn't bother you because none of you are afraid. But, let's make believe that I'm a girl and I'm afraid. I see the mouse, look for the nearest chair, run to it, jump on it, raise my skirts, and scream [this is acted out, much to

(Turn to page 48)



Hal Gras presents bobcat "Diablo," who is trained to keep claws sheathed

Photo of 1908 forestry meeting at Prescott, Arizona, includes several faces quite familiar to AFA members. In front row, 4th and 8th from left, are A. F. Potter and Wilbur Mattoon. In second row, 2nd and 10th, are Don P. Johnston and Leon F. Kneipp. In the back row, 10th from left, Samuel T. Dana.



This group of rangers gathered for a meeting in Douglas, Arizona, in 1908. They are: 1) D. D. Bronson, 2) R. E. Benedict, 3) Arthur Ringland, 4) Walter Edwards, 5) R. J. Selkirk, 6) H. D. Burrall, 7) George Cecil, 8) Jim Westfall, 9) R. A. Rodgers, 10) Henry DeLaney, 11) Stewart, 12) E. H. Clapp, 14) Roscoe Willson, 15) L. F. Kneipp, 16) A. H. Zachau, 17) W. R. Mattoon, 18) Jones, 19) Bill Earle, 20) Neil Erickson, 21) T. S. Woolsey, 22) Murray Averett, 24) Don S. Sullivan, 25) M. W. Hockaday, 26) Frank A. Krupp, 27) Royal S. Kellogg, 28) Birtall W. Jones, 29) Birdno, 30) Arthur Noon, and 31) Moody. (Unfortunately, complete identification was not possible)



Author Krauch, now retired, was silviculturist for S. W. Forest and Range Exper. Sta.



Don P. Johnston, now president of AFA, when he worked for the Service in Arizona



A 1958 photo shows Coronado National Forest is still being inspected in 1908 style.



The Coronado National Forest

As Don P. Johnston Knew It



Typical logging operation about 40 years ago in the Southwest. No mechanized equipment was available—only “horsepower” in the literal sense.



Today, mechanical devices, including helicopters, expedite forestry operations

By HERMANN KRAUCH

When it was decided to hold the 1958 convention of The American Forestry Association in Tucson, it was deemed both appropriate and desirable that an article pertaining to the Coronado National Forest, of which Tucson is the headquarters, be prepared for publication in the October issue of AMERICAN FORESTS. Also, because the president of AFA, Mr. Don P. Johnston, was at one time supervisor of Coronado, it was thought that the article should deal primarily with conditions and problems existing in the region represented by the Coronado Forest at the time Mr. Johnston took over.

AMERICAN FORESTS requested that I prepare such an article for it; first because I live in Tucson and would therefore be in a position to have ready access to pertinent material; and secondly, because I am a long-time friend of his, having served under him during the early years of my career in the U.S. Forest Service.

The material for this article was

obtained from various sources. Much of it was from the files of the late Fred Winn, who was supervisor of the Coronado from December 1, 1925 to December 31, 1942, and who, after retiring from the Forest Service, began to collect data for a history of the Coronado as well as other national forests in the Southwestern Region. Unfortunately, Mr. Winn died before he completed the history.

In preparing this article I received valuable assistance from both the present supervisor of the Coronado and from the regional office in Albuquerque.

IT was on January 1, 1916 that Don P. Johnston was appointed supervisor of the Coronado; and during the time he served in this capacity one of the more important things he was instrumental in bringing about was the final consolidation of the remaining forest units in southeastern Arizona.

Consolidation of the areas originally created as forest reserves began almost immediately after the Forest Service was established as a bureau in the Department of Agriculture in 1905, with the forest reserves being transferred to the Forest Service from the Department of the Interior. Early forest supervisors, among them T. F. Meagher, Jr., and Robert I. Selkirk, combined the Baboquivari, Huachuca, and Tumacacori Reserves into the Garces National Forest in 1908. The new forest was so named to honor one of Arizona's early Franciscan missionaries, Padre Francisco Garces. (Padre Garces had worked many years in tireless activity among the Indians in southern Arizona, but was killed by them in Yuma, July 17, 1781).

Also in 1908, three other units, the Santa Rita Forest Reserve, the Santa Catalina Forest Reserve, and the Dragon National Forest, were

(Turn to page 63)



The gullies reveal initial stages of erosion on hillside



Cattle pasture gullies destroy valuable farm fields

FO WATERSHED ESTER



Erosion has taken heavy toll from this Wisconsin farm



Cow paths on hillsides cause rills that become gullies

By LEWIS C. FRENCH



Watershed forester Richard Sartz, of LaCrosse, Wis.

RICHARD SARTZ, age 39, a watershed forester, goes to work in a new research station on critical land problems in the upper Mississippi river valley with headquarters in La Crosse, Wisconsin.

In a three-way co-operative agreement between the federal government, the Wisconsin Conservation Department, and the Lake States

Forest Experiment Station, this new research agency will seek the answers for a more effective means of curbing erosion and curbing upstream floods on some 7,800,000 acres in the fertile Mississippi river valley.

The plain facts are that conservationists must do something with this whole area — rather than patchwork watershed programs here and there — or more and more land will be gutted by floods and ruined beyond repair.

If this upper Mississippi valley is worth saving—and it is—then action must soon be taken on a wholesale scale rather than a slowpoke piecemeal basis. Time is running out in the land of the coulees. Under the aforesaid arrangement, Congress authorized \$30,000 a year for the sta-

tion. The Wisconsin Conservation Department will lease or buy the problem land where the research tests will be run. Under consideration by the state commission is the Russian coulee not far from La Crosse in the famed Coon Valley watershed, the birthplace of modern soil conservation. It is neglected land, farmed with scant success; a valley wedged in between high ridges with steep slopes, just now a bramble.

As the third partner in the research station, the Lake States Experiment Station will direct the technical program. Currently a memorandum as to definite obligations between the three partners is being prepared. What's the problem?

(Turn to page 52)

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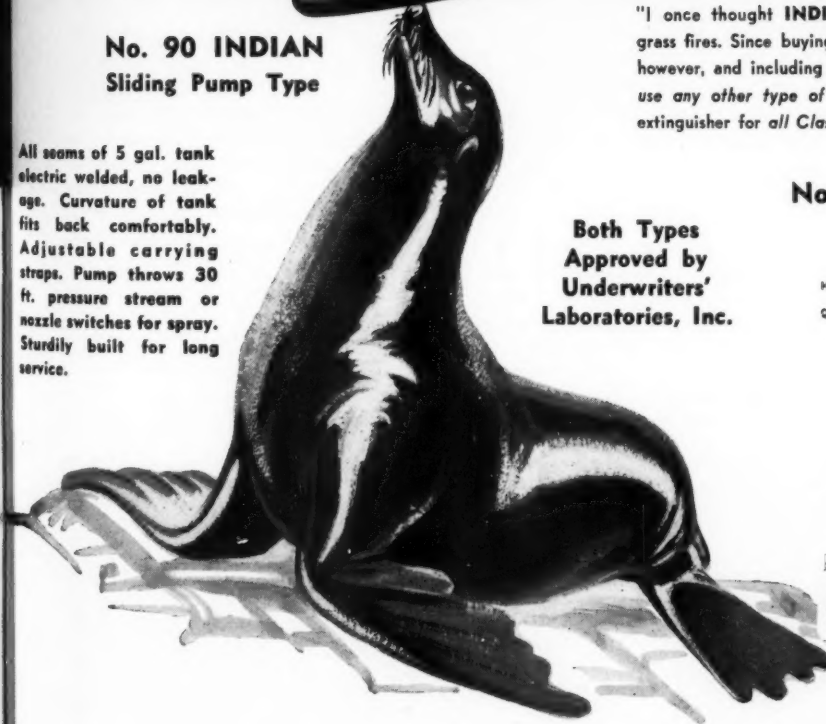
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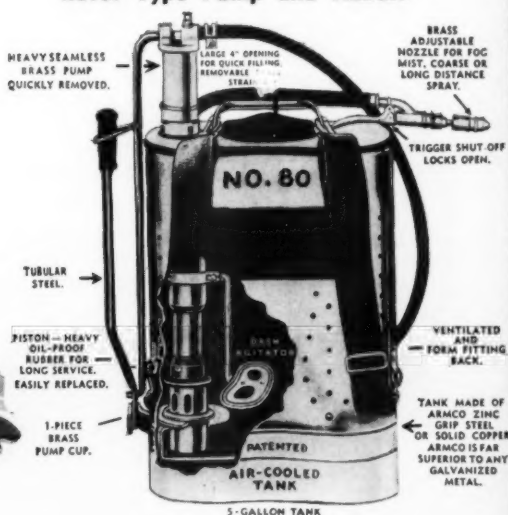
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Much attention has been given to improving agricultural techniques under the famous "Operation Bootstrap." This farmer is planting pineapples on the contour

Ceiba or silk-cotton tree grows in the drier parts of the Island



Photo by E. Ralph Thorpe

ISLAND CHALLENGE

Part II - THE LIMITS OF THE LAND

By MONROE BUSH

PUERTO RICO's two million island acres have been so mismanaged through 300 years of desperate subsistence agriculture, that today only 300,000 acres are undamaged by erosion. An additional 500,000 acres, while suffering from misuse, can be or are being reclaimed by reasonable management. The remaining 1,200,000 acres will require a tremendous application of skill and resolution to be made and kept productive. With a population of 650 to the square mile—comparable to the world total being

crammed into the continental U.S.—the need for such land reclamation is imperative.

To make any substantial progress in redeeming the soil, and hence the natural productivity of the island, far more than technology is required. Puerto Rico possesses or can readily obtain professional competency. What Puerto Rico does not have, and what technicians alone cannot supply, is land policy commensurate with the commonwealth government's goal of a continuing and am-

bitious increase in the living level.

Building on foundations remaining from the bold Tugwell era, brilliant, hard-driving Governor Luis Muñoz Marín has pulled together under the umbrella-like phrase, "Operation Bootstrap," what is probably the most aggressive self-help operation in the modern history of economically depressed areas. Within less than a decade the economy and social health of Puerto Rico has literally leaped forward.

(Turn to page 42)

Area has been utilized for agriculture through contour hillside ditches. The field is devoted to food crops, primarily yams



The vegetative barrier, a strip of Merker grass, growing in field planted to banana trees, produces a "benching" effect





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FORESTER'S NOTEBOOK

By KENNETH B. POMEROY

Band of elk pause to drink at a beaver pond on Teton National Forest



A FA Trail Riders had a grandstand view of smokejumpers in action during their trip through Yellowstone National Park in mid-August. The party was making camp in the adjoining Teton National Forest when a small fire from an earlier lightning strike began to smoke up about two miles away. Forest Ranger Adolph K. Wogensen and three assistants started off on horseback. But before they arrived, a Park Service reconnaissance plane spotted the fire and dropped two smokejumpers in clear view of the Trail Riders. Several people viewed proceedings through field glasses.

This expedition, AFA's first in the Teton Wilderness, left the magnificent scenery around Jackson Lake on August 12 for a two-week, 200-mile ride along the headwaters of the Yellowstone River. At Two Ocean Pass they saw a small stream split itself in two, one portion en route to the Pacific Ocean and the other to the Gulf of Mexico.

At Bridger and Mariposa Lakes excellent catches of cutthroat trout rewarded the fishermen. One resourceful young lady introduced her friends to a new wrinkle in culinary art. Using only a thin rock for a skillet, a little seasoning, some paper matches, and a few twigs, she transformed native trout into a mouthwatering epicurean delight within minutes after the fish were caught.

Other treats were close-up views of osprey diving in the lakes for their dinner, moose feeding in Bridger Lake, a bull elk and his harem of three, trumpeter swans, and several lesser species of wildlife.

One rider devoted half an afternoon to stalking a bull moose for a head-on picture at 50 feet. Fortunately, it was not the mating season. Then the bull might have charged and treed his admirer for the duration.

The Trail Riders also viewed at first hand some problems associated with wilderness in both Yellowstone Park and Teton Forest.

(Turn to page 42)

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Reading
about

RESOURCES



By MONROE BUSH

Kieran Scores Again

AS if those of us who relish the natural world were not enough in his debt already, John Kieran has prepared another book, *Treasury of Great Nature Writing* (Hanover House, Garden City, N.Y. 1957. 640 pp. \$4.95). This anthology, pieced together from his omnivorous reading and liberally seasoned with Kieranisms in the comments and biographical notes which orient the reader like roadsigns, has been composed with rare good taste. In the difficult art of anthologizing, it is superb.

Yet it is not an "important" book, having neither new information nor proposals concerning present problems. It is refreshingly unchallenging and unprovocative. Rather, *Treasury of Great Nature Writing* is content to be what its title says it is. With authors ranging the rich gamut from Izaak Walton through William Bartram and Audubon to Joseph Wood Krutch and Brooks Atkinson, it offers essays for long winter evenings by the fire. In fact, a long winter evening without this book would be the poorer for it.

Every reader is pleased, chiefly with himself, when he finds an editor of Kieran's stature selecting pieces that are his own favorites. There is little scientific literature comparable in fascination to the portion of Rachel Carson's *The Sea Around Us* entitled "The Long Snowfall." For years I have re-read this gem of an essay with increasing pleasure, and here it turns up again in *Treasury*, as memorable as the day it first appeared in *The New Yorker*.

Another choice of mine is Aldo Leopold's classic story of an oak, in

which he finds the centuries unfolding in the rings which his saw has laid bare. Kieran includes this too.

Whether your enthusiasms run to John Muir or John Burroughs, to T.R. or to that fabulous gentleman of Washington, William Mann, there are selections from them all in *Treasury of Great Nature Writing*. For \$4.95 I doubt that you could have bought as much sheer pleasure in 1932 as this book offers any man today who has the least pretense to literacy. It is an essential book to purchase, and to live with, and finally, to leave to one's great-grandchildren.

America As A Civilization, by Max Lerner. Simon & Schuster, N.Y. 1957. 1036 pp. \$10.00.

One of television's few adult achievements has been the documentary hour. Using sixty minutes of imaginatively edited film from many sources, woven and paced by an unseen narrator, the networks have offered us an emotional identification with the great sweep of recent history that is unique.

Max Lerner's *America As A Civilization* is a book which, insofar as words can substitute for film, offers the same sense of sweep. But of course words can never substitute for film. As a result, this is, for the most part, a tediously superficial effort to say everything there is to say about U.S. life. For his sheer dogged determination to keep going until he got to the end, Lerner deserves the sort of awe we usually reserve for six-day bicycle riders. But in triumphing, he spreads himself so thin that he is translucent. Peering through, it is possible to see a room full of file cards which resulted in

one thousand pages of loose, casual writing.

But then, too, the man can be brilliant and perceptive. Time and again he manages a sentence that is as startlingly illuminating as a flashlight switched on in the night. But it is finished almost as quickly as it began, and author and reader are off again to mush through a half-dozen pages that are no more important than the "Fifty Years Ago" column in a newspaper.

This book will be widely read by (1) people who like big books and (2) people who are impressed by a lot of chrome, even if it's only 1-10/1000th of an inch thin. What Lerner says about resources, for instance, is said in only eleven pages—and that is pretty thin. While he does occasionally refer in passing to a resource item throughout the twelve chapters of the volume, it is unlikely that the role of resources in American civilization warrants only one percent of the text. Ten or fifteen percent would have struck a better balance.

But here as elsewhere the man's great perceptive intelligence momentarily overcomes his ambition to tell all, and he dives very deep indeed when he writes:

"The final [resource] issue goes beyond the waste or conservation of resources. It is the issue of basic attitude. . . . What was lacking in every case was a reverence for Nature.

"... When the American loses the reverence for the American earth to which he is bound he loses more than his resources. He loses his meaning and his capacity to sustain

(Turn to page 78)



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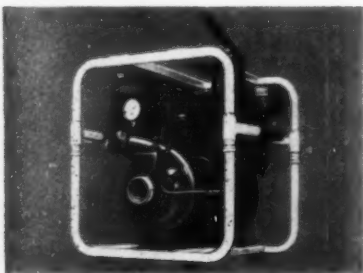
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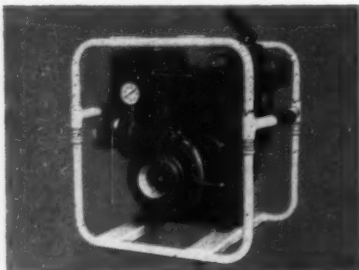
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Forester's Notebook

(From page 36)

Within the sanctuary of the national park, elk herds have multiplied to a number threatening the carrying capacity of native ranges. Occasionally riders saw conifers that had been stripped of twigs to a height of several feet, probably by elk trapped during a big snow storm. This indicates what could happen if the situation gets out of hand.

In the national forest wilderness elk hunting is permitted, and it is a major source of income for local guides. Some 100 registered outfitters will occupy their individual base camps early in September for the 50-day season. They will service 2500 non-resident hunters and an unknown number of local hunters. Non-residents pay \$100 each for a license plus \$25 to \$50 per day for guide service. Each hunter must be accompanied by a guide, and not more than two hunters may use the same guide.

Elk cannot be driven or stalked like deer. Consequently, it is necessary to range over a large area on horseback. Daily rides of 20 to 30 miles are common. One outfitter

customarily escorts his guests over some 90 square miles of wilderness and guarantees each man a shot at an elk, or free guide service until the hunter does get a shot.

If an 800-pound animal is bagged, then getting out the trophy and the edible portions becomes a task for an experienced packer. The guide prepares the head and cape for mounting, dresses the remainder of the animal, and marks a trail so the packer can come in next morning. Base camp and the highway may be a long, long ride distant.

Obviously, the ingredients are present for a lot of pressure on public officials. Some outfitters are bound to question any restriction that interferes with their activity or pinches their pocketbook. Also, they desire to keep the total elk herd as large as possible for better hunting. The elk of course respond to hunting pressure and retreat to the sanctuary, thereby increasing grazing pressures in the park. This is a good subject for the newly created National Outdoor Recreation Resource Review Commission to consider.

Island Challenge

(From page 34)

Yet these achievements must be doubled and re-doubled, and the Governor is incessantly pushing for improvement in the living level far exceeding what has been gained. The health of any society, however, is ultimately limited by the health of its land—its agriculture, its forestry and water control. Shortly the government will be compelled by its very concern for the people to reformulate land policy in terms of wise land use, giving to this immense task the priority which heretofore has driven industrialization at such a great pace.

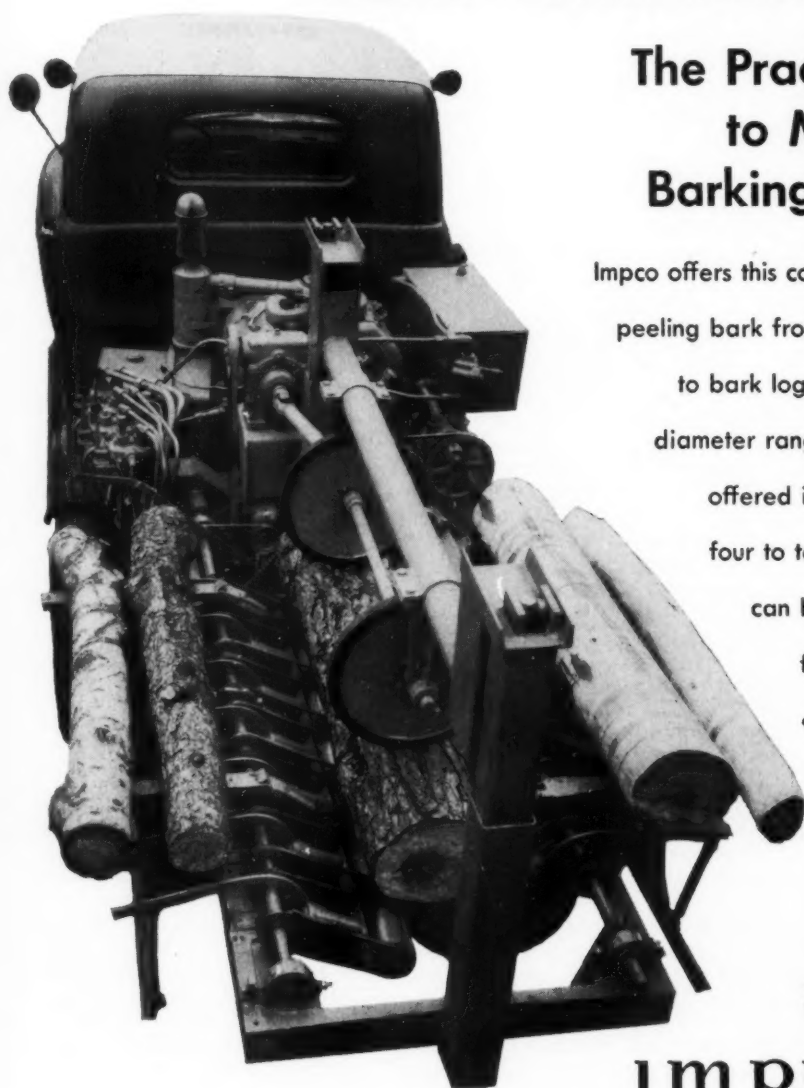
For fifty-odd years there has been a procession of official actions affecting, or intended to affect, land use. The roll call on these begins with a joint resolution of the U.S. Congress accompanying the First Organic Act of 1900; it continues through the Second Organic Act of 1917, the Puerto Rican Legislature's Homestead Commission Act of 1921, the program of the Puerto Rican Reconstruction Administration begun in 1935, and the Land Law

enacted by the legislature in 1941—to mention a few.

In each case the concern has been with the pattern of land ownership, the hope being either to prevent the further spread of monopolistic practices and, if possible, actually roll these back as illustrated by the 500-acre-limitation law; or to encourage the ownership of necessarily small family farms, which actually succeeded in reducing the number of tenant farms from 10,000 in 1910 to 3000 in 1950—though market-place economics was also influential in this trend. Ownership itself, however, within this forty-year period experienced only a modest rise from 46,000 to 50,000 farms.

This traditional commitment to family-farm land use was mistaken for land policy—and is accepted as such today—when in reality it comprises a body of social policy which uses the land for primarily social objectives. That men should own the houses in which they live and the soil they work is, in most places, a proper supposition, inherent in the

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West's tradition of human freedom and dignity. Tenancy has seldom caught the imagination of democracy's expositors. Yet freedom and dignity are hard to come by in the midst of poverty, even if one owns the poverty. Without money to buy a balanced diet, adequate floor space, clean and comfortable clothes, good medical care—without money for these things, title to a few acres of subsoil is small comfort indeed.

Obviously the Muñoz administration is committed to assisting the people in obtaining for themselves these prerequisites of decency. It would be both unfair and inaccurate to suggest that the social policies of fifty years had not been of real benefit to certain rural communities. The present prosperity has touched the farm people in many ways and in all areas of the island. The point is simply that the small family farm has proven in itself to be no long-term solution for, nor even substantial addition to, the economic health of the rural people.

The government can either plan for and encourage land use in terms of the land's most productive promise, or in terms of a social objectivity like family farming. But these worthy goals are demonstrably incompatible on an island where there is little private capital, little enlightened self-reliance, antiquated marketing procedures, and a net population increase of approximately 2 percent a year—which, ultimately, is the most serious problem the island faces.

Wise and effective land use, on the other hand, will encourage individual home ownership while allowing much of the land itself to fall into corporate ownership aimed toward the maximum production of food and fiber commensurate with an adequate income for man-hours of labor involved—a goal that would inevitably shrink the rural labor force and require the abandonment of the 500-acre-limitation law.

Maximum production and/or adequate farm income per man hour have both, to date, been the exception in an agriculture in which, in the midst of chronic poverty, the feudal tradition has clashed head-on with the social aspirations of the Twentieth Century. The land itself cannot be blamed for this. Despite tragic deforestation and erosion, Puerto Rican resources, often spoken of as poor and meager, possess an inherent vitality. Given proper management, the land could flow with milk and honey as it has never done

before. However, this implies a quality of management (and hence investment) which the ownership pattern can only rarely command—and which the indirection and indecision of the government's agricultural policies does nothing to encourage.

It is to the great credit of the island people that, in the face of such obstacles, they have done as well as they have agriculturally. For instance, Puerto Rico has approximately 350,000 acres in sugar cane distributed among more than 10,000 farms, or roughly one-in-five of the island's 50-odd thousand. Much of this culture is on a sustained-yield basis in the broad and fertile coastal plains. Undergirded by the federal Sugar Act, sugar is the island's big dollar-earner and the backbone of its agricultural economy. So lucrative is sugar, that in the last few years it has marched back into the mountain valleys, and climbed slopes fit only for forest or pasture, to the further detriment of the soil.

Dairying is coming up fast. It is the brightest spot in Puerto Rico's "new" agriculture. With an influx of capital for the improvement of both herds and pastures, milk production has zoomed from 198,000 litro in 1953-54 to 269,000 in 1955-56. The growth continues, with the promise of better health for tens of thousands of Puerto Ricans, and of new strength in the rural economy.

Unfortunately coffee is going down equally fast. One hundred and fifty or sixty thousand acres of land—chiefly forest-type land—is presently in what are often described as the most poorly managed coffee plantations in the world. Production in 1957-58 is estimated to reach only 275,000 cwt.

In 1957 the farm value of the coffee crop was \$10 million, though throughout the past decade the annual average has run between \$14 and \$15 million. Since the typical Puerto Rican farm constitutes only 35 acres, it is likely that many coffee plantations, with a gross annual return of approximately \$75 per acre, yield \$2000 to \$3000—for the support of one or more large families.

Bending under the one-two punch of stiff international competition and the local failure to modernize cultural methods, Puerto Rican coffee, despite its superb flavor, is due to become a minor crop—unless the fabled bean wins a last minute reprieve through the work of such scientists as Carlos Vincente, who has developed a sun-tolerant plant



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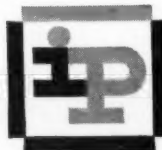
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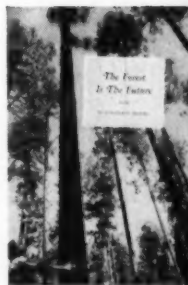
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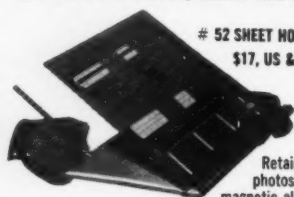
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Beef production, on the other hand, is increasing. From 1953-54 to 1955-56 the yield climbed from 169,000 cwt. to 227,000. Further substantial increases, to be economically feasible, will require the availability of capital for pasture and herd improvement on a scale unknown in this *laissez-faire* agriculture. The average farmer simply does not have an operation extensive enough to attract, or to justify economically, the investment that is required. Recently introduced or re-emphasized grasses, such as tropical kudzu, molasses grass and pangola, have demonstrated the potential of the island's mountain pastures, in some cases increasing the carrying capacity of the land 600 percent!

The factors at play in these several land-use patterns are found as well in fruit and vegetables and poultry. Where the ownership patterns are favorable to a relatively heavy investment, there is production of substantial income. Where the ownership patterns discourage ambitious financing, there is little or no application of those scientific techniques which are essential today if the land is to carry its reasonable share of the island's economic renaissance.

While this is admittedly an oversimplification of the land-use problem, it is a necessary one, since the many other factors affecting agricultural income cannot be permanently resolved until there is an ownership pattern which permits their resolution. The fact which every Puerto Rican planner must discover is that it is no longer possible for agriculture, particularly in a land-hungry island, to be both "cheap" and successful.

Thus Puerto Rico, importing as it does perhaps as much as 70 percent of its food and 80 percent of its wood, and failing to export for dollars many tropical products for which there is or could be developed a reliable U.S. market, cannot blame the individual farmer, the agricultural scientist, or the investor. All three are ready to produce, but cannot do so because of a horse-and-buggy land-use tradition which, by holding too many laborers to too many small parcels of land, denies the framework that would make high production possible.

The first step in attacking this dilemma is for the island's leadership to reject the attractive thesis that the full employment of the rural labor force is the goal, and

accept, instead, the primary need for adequate income per man hour of labor. Agriculture can no longer be regarded as a dumping ground for surplus manpower.

In order to attain such an income for those who are agriculturally employed, the output of work per man hour must be mightily increased. This will require a broadly conceived mechanization and modernization to apply the proven scientific advances, which is possible only when there is sufficient investment to streamline production, processing, and distribution. Obviously such investment cannot be sound unless the size of the operation assures an efficiency in its use. And a large operation is seldom possible, seldom encouraged, by the tradition of land use and ownership that is an integral part of Puerto Rico's present culture.

Just as full rural employment cannot be the objective, since this provides only the barest subsistence, so also maximum yield per unit of land cannot in itself be an objective. Maximum yield will often result, however, and sustained yield will always result, from wise management. After all, an economically justified investment presupposes successful agricultural production. But to attain this, the single objective must be an increase in output per man hour, and hence in income per man hour.

Here, then, is the rough outline of a land policy that is compatible with the vitality of the entire Puerto Rican society. In itself it leaves unanswered many pressing questions, such as what to do with the agriculturally unemployed once the island's land is producing income at a rate approaching its inherent capacity. But a labor surplus is a problem for the entire economy, which must not and cannot be resolved by simple recourse to unsound, short-sighted land management. The beautiful hinterlands of Puerto Rico are meant for something far, far better than an agricultural slum.

Staggering as the political problems are in the application of such a policy, Muñoz Marin and his colleagues possess incredible skill in leading the people toward decisions that advance the well-being of the whole society. Despite the narrow limits of the land on this fantastically overpopulated island, it is to be hoped that the government will find a proper way to move toward land use compatible with that unlimited promise which lies before these remarkable people.



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"And the Truth Shall Make You Free"

(From page 29)

the youngsters' enjoyment]. Now, if I'd jump that high to get away from a mouse, how high do you think I'd go if it were a rat? (Through the roof) Well, look here. On the other end of this tail which you can see between my cupped hands is a rat. Thousands of people have seen him but no one has jumped on a chair or screamed because they learned true facts by seeing him on television. They had learned to change what? (Fear) To what? (Respect) By what? (Learning) That's right; they've learned that he is 'Rooney,' the desert kangaroo rat, one of the most amazing animals in all the world because he can live his entire lifetime without something we could live only three days without. What do you think it is? (Water)"

The kangaroo rat is shown, and the students are told to note its hind legs and tail. "Is he a kangaroo? (No) That's right, but he's so called because he has legs like a kangaroo and uses them to hop up and down. Is he a rat? (many times, the answer is Yes) Oh, no! He's only a mouse, but he is called a rat because of his tail. There's considerable difference, scientifically speaking, between rats and mice."

This brings up another point, stressing how we can learn better human relations sometimes from knowing the true facts about animals.

"People call things names, but sometimes, by not thinking first, they end up doing irreparable damage. Take Rooney, for example. All these years this harmless little mouse has been called a rat! Is that fair? (No) Yet this same sort of thing can and does happen to humans, just because some people go off half-cocked and call names without thinking, when they don't know the true facts."

The kangaroo rat is the first animal shown because of his size, and because he serves as a good example of how fear, based on misinformation, can prevent happiness. The students agree that even rodents can be fascinating, once fear is changed to respect by learning true facts.

It is stressed, particularly with younger students, that the word *Respect* also involves leaving wild animals alone in their natural environment, not trying to handle them or



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capture them for the purpose of making pets of them.

"Generally speaking, wild animals in captivity become conditioned—that is, they get used to certain people and certain circumstances, but when the people or circumstances change, these animals cannot meet the new situation mentally, so they act instinctively and physically. All of them, even tiny kangaroo rats, achieve a danger potential as they get older, and most could cause serious damage."

The reasons why people should leave wildlife in the wild, unless collected for educational purposes, are pointed out. In Arizona it is in violation of Game Department laws unless special permits are obtained. Secondly, the baby wild animals invariably become "problem children" so far as their care and feeding are concerned; besides, the novelty soon wears off for the person caring for them, and the animals suffer. We cannot provide the same nourishment the animal would get from its mother, consequently, if and when it dies, the happy little caretaker becomes a sorrowful undertaker. The tragedy isn't worth the short-lived novelty. The most practical reason, however, for not trying to tame a wild animal into a household pet is the calculated risk which becomes greater as the animal gets older.

Each succeeding animal shown to students demonstrates some point designed to change fear to respect, to promote an interest in conservation, or to promote better human relationships through a proper animal relationship that can be used for comparison. "Charley," the five-foot gopher snake, for example, is living proof that once you lose fear you must have respect.

"A person who neither fears nor respects is looking for trouble, and usually finds it," audiences are told. Our baby mountain lioness "Georget," who spent seven months as a crew member of the Desert Ark was living proof of this point, and the demonstration became more dramatic as she grew older and larger.

Charley was used also to stress the fact that people should not harm snakes unless the imminence of danger requires drastic action. Even then, discretion should be used in dispatching a snake. There are two good reasons why people should not kill snakes under ordinary circumstances: (1) if the snake is harmless, as most are, they are committing a crime against Nature; and (2) if it is a rattler, they are taking a serious

chance of being bitten; rattlers, when attacked, may become extremely fast and unpredictable.

"La Vaga," the four-year-old ring-tailed cat is a unique ambassador of good will. Born in a "moth-ball" bomber at Davis-Monthan Air Base in Tucson, she was extremely wild and vicious when captured at the age of five or six months. After two months of conditioning, it was possible to hold her with gloves. The first time she was to be shown on TV, she took one look at the camera, bolted, and disappeared into the station's duct work. She ran loose in the TV station for several days and nights until she re-trapped herself in one of the cages.

This beautiful cat (which isn't a cat but is related to raccoons, coati-mundis and bears) allows herself to be petted by as many as twenty hands at a time through one reason alone—trust. Audiences are told that she trusts all human beings—small, tall; skinny, fat; light or dark complexioned—because she has never been hurt or teased. "If someone pulled her tail or pinched her, would she trust people any more? (No) If you hurt or tease another living thing, who loses? (You do) What do you lose? (The faith and trust of whatever is hurt or teased.)"

"B-B," the baby badger, inspires youngsters to make the best possible use of any special talent or physical characteristic they may have. One of the main reasons a badger is highly respected by other animals is that they have learned he is a terrific fighter because of his long claws, which make him one of the fastest diggers in the animal world, his sharp teeth in a powerful jaw, a bull neck which protects vital arteries, and, most interesting of all, a very loose and flabby skin which the badger puts to good use. When another animal bites him any place on his body, he can turn around inside the skin and bite back! The badger, considered pretty by youngsters, is also proof that one can be knock-kneed, bow-legged and pigeon-toed, yet be attractive.

To remind audiences of a common mistake many people make when approaching an animal, a year-old bobcat has been trained to swipe out, with claws sheathed, at a hand moved abruptly in front of her. No one should extend a hand in front of a kitten or puppy and then pull it back abruptly, as is often done through fear. The animal may reach out with paws or teeth, and such action can easily become a

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habit that would be very dangerous and hard to break. The alternative is to place a closed fist slowly but unflinchingly in front of the kitten or puppy for it to smell and learn to trust; the idea is that the animal cannot bite on a fist as easily as it could on extended fingers. Most important, however, is to eliminate the tendency to tease young animals.

"Diablo," as this bobcat is named, is most unusual in that she can still be used for public demonstrations with comparative safety even though nearly full-grown. Bobcats as a rule are very unreliable and soon become risky for public handling, but Diablo was seriously ill when about four months old and was nursed back to health with medicine, patience, and love. "Corny though it may sound," audiences are told, "Diablo represents a living testimonial to the power of love—a precious therapeutic agent available only from another living thing."

The Desert Ark program is usually concluded with the showing of "Clorophil," the striped skunk, who dramatically demonstrates how any animal—tame, wild, or otherwise—can react instinctively toward the

smell of food. A piece of marshmallow is brought within his smelling range, and Clorophil snaps out at it, showing that where food is concerned he'll bite first, fingers and all.

Audiences are warned also of the inadvisability of picking an argument with a skunk. Invariably the stamping stinker will have the last, and most powerful, word. Also, it is one of the few animals that can look you in one eye and spray you in the other at the same time.

The work of raising, conditioning, and training these wild animals that are used for educational demonstrations is most gratifying. We hope one day to achieve that special kind of humility which some say is reserved for the naturalist. Our sincere thanks to those who made this career opportunity possible, and to all natural scientists whose generous cooperation, direct or indirect, helps us to avoid unintentional anthropomorphism or nature faking.

As you can imagine, words cannot express our feelings toward the wonderful animals from the Arizona-Sonora Desert Museum whose lives are being dedicated to the happiness of those who see and learn about them.

Watershed Forester

(From page 32)

Starting in northeastern Illinois around Galena and running straight north on the fringe of "Old Man River" past La Crosse and into St. Croix county of Wisconsin is land the glaciers missed, the driftless area. There are 100,000 acres in Illinois and 5,000,000 acres in the coulee country of Wisconsin which are flooded periodically, spilling millions of tons of the thin skin of top soil into the Mississippi and on down to the delta.

On the western side of the Mississippi there are about 700,000 acres in the northeastern corner of Iowa and 2,000,000 acres of Minnesota having the same problem.

True, the slopes on the Minnesota side are not as sharp, nor the ridges as high, nor the problem as great as in Wisconsin, but every section of this whole area has erosion and flood problems.

Even in areas given a fairly good treatment of strip cropping, terracing and contour farming, and waterways, periodically the meandering, deep-banked creeks and tributary streams threading through these valleys flood. The dry run creeks, fed by a hundred or a thousand drain

pipes, run down those slopes, rolling up a tidal volume of water that, with increased velocity, picks up the top soil, carries off the fences, sweeps the lowland corn out of the field, or silts the alfalfa land, washes out bridges and roads to wreck buildings and hopes in its path.

This happens during the spring thaws and through the summer and fall, right until the area is locked in winter ice. It can be in March, when the snows melt, or in August, when the crops are ready. Let there be a steady downpour and all too often these floods will occur.

Even an untrained newspaper reporter can understand that when the steep, tin-roof slopes are still frozen with the snow when the rain comes, the water cannot seep into the soil very much and rushes to the bottom land creeks.

But what about those summer-time floods when there are grass and crops?

First is the sad mistake of cutting the original timber off those ridges, and especially down those slopes . . . exposed land.

Then, too, farmers try to stretch



Ancient Miracle Material

2,365,476,967 years¹ before scientists combined air, coal and imagination to create our wondrous modern synthetics, a somewhat better "plastic" was developed.²

Among the first to recognize the unique advantages of this senior plastic was the chap at left who used it to fashion the world's first cudgel—a device then regarded as the ultimate weapon.

The familiarity which has diminished the novelty of this natural plastic makes it none-the-less remarkable today. For neither time nor new materials have replaced it as the planet's favorite and most versatile construction material.

The reason lies in this material's still unmatched combination of advantages. Its warm beauty defies imitation; every piece is custom made, no two are quite alike. It comes in a wide range of types, densities and sizes. Light, workable and marvelously strong, it has tremendous fatigue and impact resistance.

The basic method of producing natural polymer is quite simple. However, not inconsiderable skill and planning are required to make the process work most efficiently, as well as re-shape the basic raw material to best advantage.³

Of course, we do have important help. After all, the DuPonts and Monsantos make their synthetic plastics largely on their own, while our natural plastics industry has an excellent—and unique—supplier of semi-finished raw material.

Just like Joyce Kilmer says.⁴



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²This ancient miracle material is a natural organic ligno-cellulosic polymer, a true natural plastic commonly known as wood, composed of a complex of substances that has defied precise chemical definition.

³The basic process is called growth; the science of improving it forestry; the re-shaping is better known as forest products manufacturing.

⁴Surely you remember only who can make a tree.

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their forage supplies by pasturing this land or putting it into crops.

The technicians are now finding out that during the summer those southern slopes, exposed to the sun, denuded of grass and cover, are baked to a hard, tight crust.

Now let a storm hit and the water rushes down these crusted slopes, generally following those blasted cow trails that become gullies, pouring a sheet of water into what was a harmless dry run the day before. And watch out downstream... Run for the hills!

There was an enthusiastic dedication of the 24,000 acre East Willow Creek watershed on the Minnesota side. Twelve solid earthen dams were built, often utilizing a highway grade as the barrier to stop the destruction of 155 farms.

Lovely country, this Minnesota valleyland; the slopes are more gentle and the valleys much wider than in much of the Wisconsin coulee country across the big river.

There had been considerable soil conservation work in this area, here and there—strip corn farms with terraces and contours—but never one solid program for the whole watershed.

Eight years ago, in a spring flood, there were four inches of rain within six hours. Down poured that flood of water from the slopes, concentrating into the East Willow Creek.

Even in Preston, Editor Ludwig Gartner of the Preston *Republican*, two blocks from the creek, points to the type cases in his plant and says, "Water clear up to the top."

In a few hours, that rip-roaring flood cascading down stream ripped out a gully 15 feet deep and 150 feet wide. The engineers and fieldmen going to work to repair the damage had to climb in and out of that gully with ladders.

There was 100-bushel-an-acre corn on farms where this gully had been. Bulldozers scraped dirt into the gulch. The rills in the farm lands that became deep gullies had been healed. The upstream dams so far stopped a flood threat with the series of reservoirs and ponds. Still, look close and you see slope timberland slashed with gullies.

This Minnesota watershed, like all the rest in the whole upper Mississippi river valley, needs and deserves a better answer to the cancer-like erosion.

And every place even a novice looks, there is the crying need for trees.

The mass of paper and blueprints for the famed Coon Valley watershed of 93,000 acres on the Wisconsin side finally wallowed through Washington, D. C. red tape to get approval. Normally this Coon Creek is a harmless stream meandering on its way through Coon Valley and Chaseburg and Stoddard to unload in the Mississippi. However, there have been two severe floods in recent years, with every land owner nervous over the dangers.

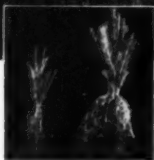
Having their own blueprint system, and not being tied to a desk, wild beaver moved into Coon Creek to build their own dams . . . but in the wrong places.

The application for a full watershed treatment is now for the Bad Axe section adjoining Coon Valley, around 122,000 acres. Dams are scheduled to be built on a small watershed near the Mississippi. The pilot watershed built by the government on the Kickapoo River is working.

The East Willow Creek project in Minnesota and the Wisconsin programs, such as historic Coon Valley, are fine. But they are only comparative patches of the 7.8 million acres of land needing better erosion con-

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Seed collected by our men from selected trees.

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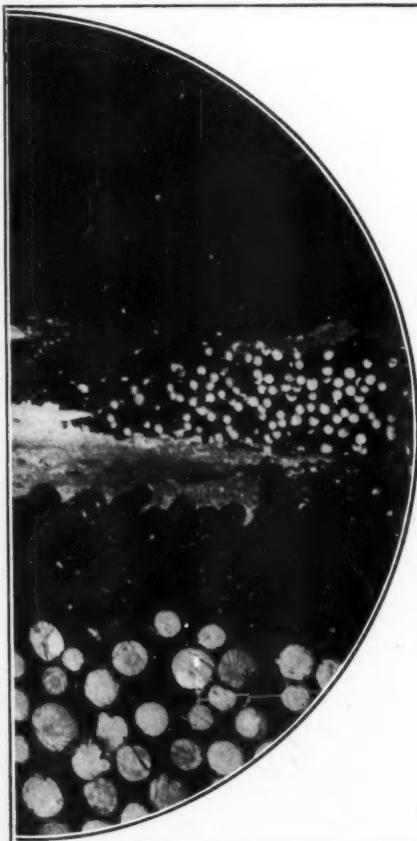
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trol. Go down almost any side road in this vast area and you can see land that needs attention "now!"

"There is alarming need for one over-all program for the whole upper Mississippi river valley," says David Mackie, Madison executive secretary of the Wisconsin Conservation Department during the first conference at La Crosse for this new research station.

"The job ahead is to find what cover does the best job protecting those slopes and valley land," said Sidney Weitzman, St. Paul, watershed supervisor of the Lake States Experiment Station.

The stern fact of the matter is that some of those slopes exposed toward the south have been washed so thin and robbed of fertility so much that many trees will not thrive. The survival rate is too low to be practical.

Red Cedar has been used. But there is the problem of this tough tree being the host to a variety of apple rust. Now the genetics division of the Lake States station seeks a resistant red cedar strain.

For the start, this new research station is quartered in the La Crosse fish hatchery of the U.S. Fish and Wild Life Service.

"It may take time, but we want the right answers," say the committee setting up the program.

It will be Forester Sartz's job to

make an analysis of the area problems, then carefully measure the successes and failures of past practices, including cover crops and trees. He will try out practices recommended by the Lake States Experiment Station and others, and in time put the result to work.

Is this upper Mississippi valley worth saving?

Some early August day when you want a scenic feast, travel to the coulee country, via Coon Valley or the Alma (Wis.) drive back to this quiet haven. Get up on a high ridge. . .

As far as you can see is a masterpiece of color: the green of the trees and corn and lush alfalfa, then curving bands of gold, the ripe oats and wheat, some as bright as new gold and some burnished bronze of old antiques. Set back is a white church with a tall steeple inviting a prayer of thanks for such beauty and abundance. And farms are nestled into the nooks and valley land; the so-called two story farming, the lowland and the highland.

Here is beauty, the green and gold with bright colored combines and forage choppers in the distance looking for all the world like huge crawling bugs gobbling up the grain.

Only a statistical dolt with a slide rule brain submerged by administrative red tape could see this scene of pre-harvest glory and still say the

costs are too great for the benefits.

Just go to the Mississippi with its series of big dams—26 of them, each costing \$5,000,000 or more to harness the floods of the river and protect the channel—and watch. Look at the finest topsoil of the area. How much better to keep that soil and that extra water upstream on the farms and have fewer dredging costs down the big stem.

We should either do something about repairing this upper Wisconsin valley area or junk much of the soil conservation program. For right in these valleys was intended the basic proof that modern soil conservation would work to preserve the land and abundance.

Either make it work, or in eons of time this area will be the Grand Canyon of the upper Mississippi.

Graduated from the University of Pennsylvania forestry school, Sartz first went to work for the Forestry Service in the Quaker state. Then he specialized in watershed controls and restoration work near Philadelphia and outside Portland, Oregon, on the Columbia river. More recently he was in the White Mountain forests and watershed of the east, being stationed at Laconia, N. H.

Now he will try for the answers to heal the scars of the upper Mississippi valley, once so rich with pine and hardwoods.

Living Museums

(From page 20)

gineer-outdoorsmen who built the park in the first place. The paved paths reflect the thinking that permitted a wide concrete highway to be built through one of the wildest and most scenic areas in the park, Beechy Bottom, where motorists may now step on the gas and speed past the places where thousands of appreciative hikers once walked the trails. New and better highways are certainly needed. There is no debate here. Nevertheless, their location is something else again, in relation to park planning and land use policies, present and future.

It is true, there are many trails left in the region. Regardless of this, the original, far-seeing planners and donors of Bear Mountain Park realized that its really permanent value lay in offering the people of the largest city in the world a relatively wild area. Eminently successful were the efforts made to protect and add to the wilderness aspect of

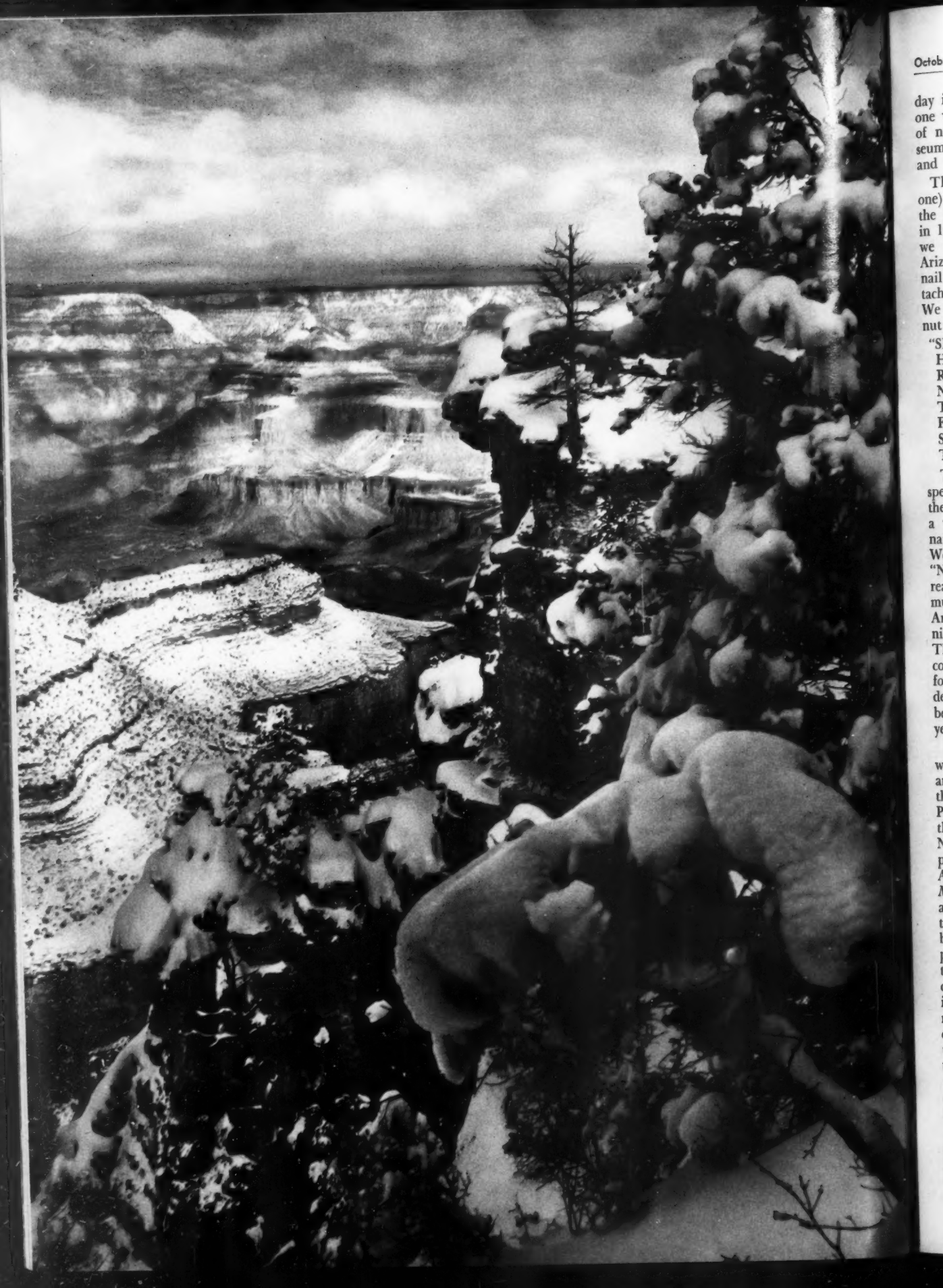
the region. Today there are heavily-used, new, artificial recreation centers. Fortunately, most of these are near the outer perimeter of the park. There is no point in crying over spilled concrete. It may have been necessary to manicure the woods and pave the paths in the vicinity of the greatest use areas, but may the manicurists and pavers never be permitted to move over the entire park. May the children's camps, hiking trails, and other facilities requiring some real effort on the part of users continue to be given their own important priorities in the general scheme of park operation.

Once we placed a sign at the beginning of a short, labelled botanical trail that wound down the side of a large rock formation on the Bear Mountain trailside area. The trail was a bit rough, but it was perfectly safe. The sign warned, "This trail is unkind to high-heeled shoes." There must always be trails of this

type, even in spit-and-polish areas where city dwellers may, for brief outings, have the experience of finding their way over the type of footing that was familiar to their ancestors. The principle of urging present-day generations to place their feet on a trail as well as their backsides on an automobile or airplane seat cushion, is a good one for park policy makers to remember.

We congratulated the present-day operators of the Bear Mountain Roadside Museums on the cleanliness and efficiency of their newly conceived zoological exhibits. We wished them well, but nonetheless our heart was heavy. The effort in creating original conservation and nature educational devices, plans, and procedures had largely been lost. There is no place for city-type zoos and natural history museums in large parks adjacent to metropolitan areas. We hope that some





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day in Bear Mountain Park, someone will again build another series of nature trails and trailside museums with winding brown paths and "covered trails."

The very first sign (the actual one) we placed at the entrance to the Bear Mountain Nature Trails in 1927 is before us on the desk as we write this account in far off Arizona. The stiff paper sign has nail holes to show where it was attached to a wooden base on a tree. We recall that the tree was a chestnut oak. The label reads:

"SIGNS ALONG THE TRAIL

How Many Of Us Are Able To Read Unaided The 'Signs' Of Nature? Let The Guiding Labels Take The Place Of A Naturalist Friend Who Has An Interesting Story To Tell You As You Follow The Trail."

That was it. There were no stuffed specimens along those trails or in the buildings. It was a living and a vital exposition of the ways of nature as well as of her creations. Well, as we said before, there are "Naturalist Friends" who still build real trails. There are many outdoor museums in operation throughout America in national, state and municipal parks and camping areas. The increase in population in this country presents all the more need for this type of conservation endeavor. It should be increased for the benefit of added numbers of citizens yet unborn.

We were once again presented with the opportunity of founding and building an outdoor museum, this time by the Charles Lathrop Pack Forestry Foundation through the efforts of its president, Arthur N. Pack of Tucson, who was first president of the American Nature Association and editor of *Nature Magazine*. This museum-zoological and botanical garden and nature trail is now five years old and has been visited by more than a million people. It is located in the heart of the largest and healthiest saguaro cactus forest in the United States, in Tucson Mountain Park, fifteen miles west of the rapidly growing city. The superb desert view from the main patio of the museum is unexcelled anywhere; seventy miles of mountains, plains, and sky stretch outward to the horizon in Old Mexico.

Here we laid our nature trails, installed living natural history exhibits, this time not in structures fronted by glacial boulders, but in thick-walled adobe buildings. We

designed and constructed shelters and enclosures for animals and stressed the need for the conservation of all natural resources wherever and however we could. Best of all, we were able to discover and employ a talented group of young naturalists to carry on the work, improve it, and "sell" it to the public. Now this unique and rapidly expanding institution is booming and blooming, literally. Never have we observed the degree of enthusiasm with which an entire state, let alone the city of Tucson, has taken an institution of this sort to its heart.

The Desert Museum has more than a thousand paid members; it has its own weekly sponsored television show, two weekly newspaper columns, and supporting friends from one end of the country to the other.

There are many trail labels which duplicate in character and construction the ones that graced the paths at Bear Mountain. There are three-sided, triangular labels that have to be turned in order to enable the visitor to read the entire story. There are question and answer labels and ones that have to be turned twice in order to complete the reading.

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There are other "turn over" signs that provide examples of man's carelessness in handling natural resources on one side and the corrective measures to be taken on the other.

Attention has been given to water shortages and to the ruination of watersheds. In fact, an entire outdoor exposition, four hundred feet long and two hundred feet wide, has been devoted to this subject. Here equipment, including automatic rain gauges, evaporation measurement pans, soil moisture, temperature, water run-off instrumentations, and "do-it-yourself" rain-making machines, are at the beck and call of the visitor. He is asked to push buttons and watch moving electronic instruments in order to gain information. In addition to interpretive signs, there are concealed loud speakers with ninety-second "canned" verbal explanations. At one end of this exhibit area is a tower where a museum employee sits before loud speaker and microphone controls. He can listen to what the visitor has to say and then respond over the speakers in an effort to give more complete explanations regarding the exhibits under observation.

The high spot of this demonstration is the weather information telemetering device designed and produced by the Armour Research Foundation and installed beside the control tower. We believe this is the first time a "sputnik" machine of this sort has ever been shown to the public. The complicated but useful electronic instrumentation consists of three dials that give information on wind direction and soil and air temperature, entirely by radio signals, from a mountaintop one half mile from the museum. There is a constant "beep" sound at the receiving end. Both solar and regular, self-charging batteries are used to send the radio impulses from the distant site.

A duplicate weather station is located on top of the tower. Three dials, also indicating wind direction and soil and air temperature, are placed beneath the telemetering indicators on the same panel. Wires carry the impulse in this instance. The arrangement enables visitors to compare distant and nearby weather conditions. There is a variation in dial readings, due to the fact that the mountaintop location presents a different exposure to wind and sun.

The significant possibilities of this type of weather station are endless,

wherein they permit the placement of instruments on remote peaks and "send" the information to far off recorders without the need for expensive high maintenance wire systems. As a modern "interest arouser," this trailside exhibit can scarcely be equalled, especially for children. The importance of knowing accurately the type of information gained from the dials, in relation to watershed management, is stressed upon interpretive labels.

This entire outdoor exposition represents an ambitious undertaking to further conservation education through presenting, in popular fashion, the basic research factors involved in watershed study and management. The theme is "Know Your Facts." It has been our delight to conceive and plan this exhibit, and to secure the necessary funds to bring together the organizations and ingenious individuals essential to its completion. The Pack Foundation has contributed more than one hundred and fifty thousand dollars for this project. Other organizations cooperating include the U. S. Forest Service, the U. S. Soil Conservation Service, the Armour Research Foundation and the University of Arizona.

Then, there is the Desert Museum Tunnel. The outdoor museum policy of exhibiting plants and animals where they belong governed the invention and construction of this teaching device. We believed that inasmuch as desert animals spend most of the daylight hours underground, the place to show them to the public was also underground. So, at considerable expense, a long, dark tunnel was constructed, complete with dimly-lighted mammal and reptile burrows and dens on one side, and on the other an exhibit of living plant roots behind glass. Periscopes enable visitors to see above ground and observe the leafy parts of the same plant whose roots they view twelve feet under the surface. Reinforced concrete was used to build the tunnel, but neither inside nor out does the concrete show, except on the tunnel floor. All the rest is covered with simulated rock formations underground, and with a thick, plant-covered layer of earth on the surface.

The public response to this tunnel exhibit has been a matter of satisfaction to all who had anything to do with its construction. On Sundays a line composed of some two hundred visitors patiently waits its turn to enter, and once the people are inside it is difficult to get them

out. There are railings to lean upon. When these are pressed, they automatically turn on switches which light the dens and, simultaneously, illuminate plastic labels which describe the various exhibits. An ant nest in the tunnel is complete with egg-laying queen and many little chambers and runways. It is contained in a block of plastic three feet square and five inches thick. There is a bat cave, too, with live, fruit-eating bats which hang from the ceiling in full view in the daytime, and have access to a large outside feeding cage at night. All the living creatures have outside enclosures, but inasmuch as they are nocturnal animals—badgers, kit foxes, ringtailed cats and others—they spend the days down in their burrows where the public may study them. Here is a living, underground nature trail, one that would have delighted Alice of Wonderland fame. Best of all, the animals are comfortable and well cared for. The glass that separates them from the visitors makes it possible for them to enjoy life. The little pack rat, who shares a large den with a porcupine, never pays any attention whatsoever to visitors. The kit foxes sleep soundly, and the prairie dogs in their specially designed quarters

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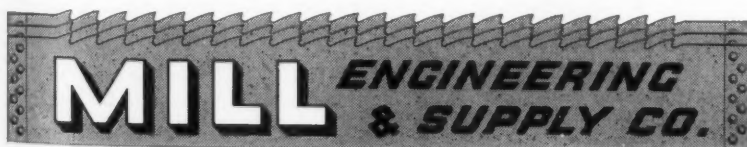
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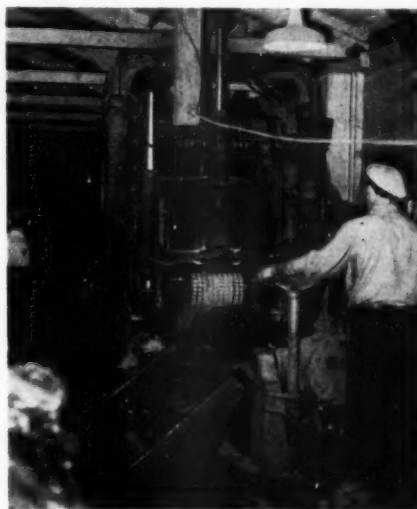
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The Desert Museum's combined indoor and outdoor animal and plant displays, nature trails, tunnel, watershed exposition—everything, in fact—stress the importance of a consideration of ecology of the essential interdependence of both animate and inanimate forms. Schools from one hundred or more miles away send buses regularly, and the Tucson Public School system has patronized the museum to

the extent that the trustees found it necessary to employ a full-time school instructor and guide on the museum staff. The self-supporting institution maintains an air-conditioned station wagon, known as the "Desert Ark," to carry live animals to schools, service clubs, and other groups for lecture and exhibit purposes. This service is appreciated and builds good will. The Arizona-Sonora Desert Museum is without question a going concern.

Now we are engaged in building yet another outdoor museum, nature

trail, and resource conservation demonstration area. The new, fifty-thousand-dollar museum building with one hundred thousand dollars for its development is located on the historic Ghost Ranch, sixty-five miles northwest of Santa Fe, New Mexico, near the town of Abiquiu, on the plains above the Chama River. This institution is another monument to the Charles Lathrop Pack Forestry Foundation and its president, Arthur N. Pack. The project is known as the "Ghost Ranch Museum."

Not far from the museum building and in full view are tremendous cliff formations, so massive and varied in shape, pastel colors, and sheer strength, that they fairly take the breath away. They represent one of the best visible cross sections of geologic time in America. These cliffs, battlements, and chimneys have yielded a wealth of fossil material, including several species of dinosaurs which have been excavated by the American Museum of Natural History, the University of California, and the University of Chicago. There is a Ghost Ranch Dinosaur exhibit in the great Paleontology Hall of the American Museum in New York.

The museum stands beside a main highway that traverses the center of the twenty-thousand-acre ranch, once used for cattle and the production of forage. Mr. Arthur N. Pack, who owned it, presented it lock, stock, and barrel to the National Board of Christian Education of the Presbyterian Church, USA, as an educational and recreation center for young people, and a retreat and place of rest and study for ministers and their families. The church officers invested large sums of money to provide modern accommodations, and during the first year of their ownership, more than fifteen thousand persons stayed at the ranch. The museum will serve the church groups, the traveling public, and a large section of New Mexico, where there are no similar nature and conservation educational facilities whatsoever.

Thus it is that we have again been given the rare opportunity to plan and direct the creation of another natural history exposition, find the staff to grow with it, develop it through the years, and promote its objectives.

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of the Hudson Highlands. We built an attractive trailside historical unit to relate the dramatic account of the American Revolution in the region. We had displays which described the local Major Andre—Benedict Arnold affair. Picturesque, star-shaped Fort Clinton, situated on the museum grounds, was also well represented with displays in the building and at the site. The well-publicized tunnel exhibit at the Arizona-Sonora Desert Museum provides a "neon-sign" that brings people in droves. Ways must be found to excite public interest or all is lost.

The main drawing card at the Ghost Ranch Museum in New Mexico will be dinosaur skeletons. The American Museum had excavated and removed tons of fossil skeletal material and transported it to New York in 1947. Eleven years later, in 1958, we prevailed upon the New York museum authorities to return one of the dinosaur fossil-bearing stone blocks to the place of origin. We decided it would be less expensive to pay the freight than to dig our own block from one of the side canyon walls, high above the ground. So, the dinosaur came home after a round trip across the United States, and when the



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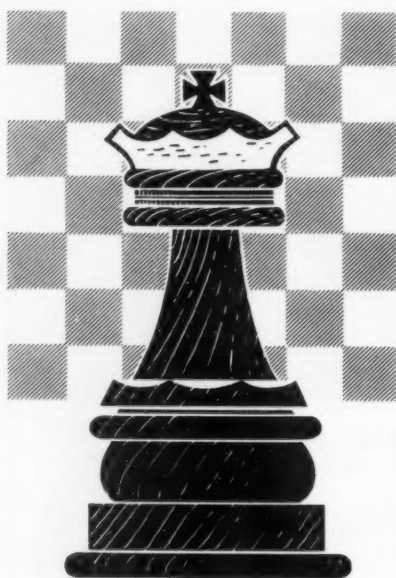
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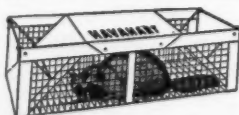
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bones have been separated from the rocks that bind them, the Ghost Ranch Museum will have an excellent, first-hand reminder of large reptiles that roamed the immediate neighborhood two hundred million years ago, and a leading public attraction in the bargain.

Dinosaurs or no dinosaurs, tunnels or no tunnels, we have preached conservation from many a platform, but the results were never as satisfactory as guiding people along a nature trail, whether in New York, New Mexico, Arizona, or elsewhere. We have written a considerable number of articles and bulletins and several books, but we have found that most of the publications fell into the hands of people who agreed with our point of view regarding conservation. We have also made arrests of wildlife and plant life vandals and have persevered until the miscreants were prosecuted. The

amount of permanent good accomplished by these activities is doubtful. For our part, we are of the firm opinion that acquainting the public with actual objects in place is a better way of teaching, and we shall try in one way or another to keep on with this type of conservation educational effort until the end of our days.

At the Ghost Ranch Museum there will be ecology nature trails on the six-thousand-foot-high prairie surrounding the building. A watershed and soil conservation demonstration area will also be constructed. As far as possible we shall do our best to carry out the expressed ideal of the words upon the bronze tablet fixed to a corner of the new museum structure. The tablet reads: "Dedicated to the Education of Man in the Stewardship of the Natural Resources Entrusted to Us All by Our Creator."

Tucson

(From page 26)

public when one of the many movie companies move in to film a picture. Beyond it is the famed Arizona-Sonora Desert Museum, whose living exhibits of desert flora and fauna have attracted a million people in its first six years. The unique new watershed conservation exhibit built by the Charles Lathrop Pack Forestry Foundation was built on museum grounds. The Arizona State Parks Association was founded in Tucson in 1956 and is promoting a system of state parks for the Apache State.

Swimming in public and private pools, boating on the Gulf of California or on the lakes of the Salt River, golf on several courses, and horse and dog racing are popular. The Tucson Cowboys take over when the American League Cleveland Indians finish their spring training. Access to the Coronado National Forest, Tucson Mountain Park, or the National Park Service's Saguaro, Organ Pipe Cactus, Chiricahua, Casa Grande, and Tumaca-

cari National Monuments means that Tucsonians can enjoy within a short distance from home all of the pleasures of outdoor recreation, either on the desert floor with saguaro, creosote bush, ocotillo, palo verde, cholla, prickly pear, and mesquite in the winter and the brilliant host of flowers that carpets the earth in the spring, or they can climb up into the ponderosa pine for invigorating skiing in the winter or luxuriate in the coolness of the high country during the long summer.

While many visitors bask in the warmth of winter sunshine, many residents prefer the slackened pace, the baking heat, and the incomparable nights of the southern Arizona summer. A big city surrounded by wilderness, a cosmopolitan community with something of a small town's informality, an oasis on a desert where the water problem looms over the horizon, a place which strives for the new and yet treasures the old—that is Tucson.

A Pioneer's Pioneer

(From page 21)

deavor ever since he helped to originate the American Nature Association in 1922. In addition to this, he has also helped others to pioneer. He has never investigated the dictionary definition of the word "inactive." His work will survive him for a very long time.

He is still flying his plane.

Oh yes, we forgot to indicate what the middle initial "N" stands for. It's "Newton." We doubt that Arthur Pack is a relative of Sir Isaac because he has never stood still long enough to permit a dropping apple to strike him on the head.

Coronado National Forest

(From page 31)

combined and designated as Coronado National Forest. Two additional forest reserve units (Chiricahua and Peloyaillo, were also consolidated in 1908, and designated as the Chiricahua National Forest. In 1911, the then existing Garces and Coronado National Forests were combined, the name Garces being eliminated.

It was at this point of the consolidation work that Don P. Johnston came into the picture. There were headquarters offices at both Nogales and Portal. In some old notes by Don that I found, Don says, "Villa and I consolidated the Coronado by closing the office at Portal, under Supervisor Zachau. Before that there had been an office at Nogales, on account of Baboquivari." In 1917, Johnston completed the consolidation of all the previously-created and differently-named forest units by combining the Chiricahua National Forest and the Coronado Forest (as of 1911) into the Coronado National Forest. With the consolidation of 1917, the Coronado National Forest remained as such



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until 1953, when three divisions of the former Crook National Forest (total of 425,674 acres) were added. As of now (1958) the Coronado National Forest contains a total of somewhat over a million acres.

J. C. Selkirk was deputy forest supervisor under Johnston during the consolidation. Some of the district forest rangers of that period were Hugh Bryan, Robert A. Rodgers, Carl Scofield, Don S. Sullivan, Arthur H. Zachau, and Stanley F. Wilson.

Shortly after Johnston had completed the final consolidation of forest units on the Coronado, he was transferred to the regional office in Albuquerque to assume the duties of chief of operations. As supervisor of the Coronado he was succeeded by Paul P. Pitchlynn, supervisor of the Sitgreaves National Forest, on June 1, 1917, who in turn was succeeded by Fred Winn.

As mentioned previously, it was Mr. Winn who collected a lot of early-day material with the view of using some of it in connection with the writing of a history of the Coronado and of other national forests in the southwestern region. Early-day forest rangers and fire guards were largely "rough 'n ready" men without any advanced education, but nevertheless capable of expressing themselves quite clearly (and also frequently quite colorfully) in their reports to the supervisors, extracts from some of which will be given.

Supervisor Winn was a college-bred man and a very capable and witty writer. He tells of joining the Forest Service at Datil, New Mexico, when "one of Teddy Roosevelt's forestry men talked me into it." The forestry recruiting officer said, "They tell me you're the only fellow in these parts who can write your name without sticking out your tongue and wiggling your toes."

"In those early days," Winn wrote, "the forest reserves were all west of the Mississippi. They were created in country being lived in by descendants of mountain men, beaver trappers, bear hunters, trail blazers, and fighters who had taken the lands away from the Indians by war. They were rugged individualists . . .

"Those pioneers used the public domain as they pleased. Life, for them, was the survival of the fittest and devil take the hindmost. They had range wars and feuds in which they fought just as hard as they had fought the Indians . . .

"Trying to get old timers, who'd

fought Indians and who thought they owned the lands on which they'd settled on and made safe for other settlers, to see the idea and ideals of the national forests was tough going," Winn said.

"Rangers were told they would be killed 'if you set foot on this land again,' and one southern Arizona ranger had to kill a man in self-defense after such a threat and drawing of guns. Many another bluffed his way through while his heart stood still as he looked down the barrel of a gun. . . ."

In a copy of the *Coronado Quarterly* (newsletter) of July 1, 1911, I noted this item: "Supervisor Selkirk is making frequent trips to the Catalinas just now, looking after construction of new trail into the mountains, which is being built by the Chamber of Commerce, in cooperation with the Forest Service, each furnishing \$500.00. A route was selected which branches off the old Sabino trail at Pinchot Park and Pillows Pine Ridge, connecting with the old Soldiers Trail in the vicinity of Burned Cabin. The trail is about six miles in length and will be known as Pine Ridge Trail. The object of this trail is to make the attractive camping spots in which the Catalinas abound, more accessible to residents of Tucson."

Apparently this trail represents the first step that was taken toward making the Mt. Lemmon recreation area accessible from Tucson, via the southern side of the Catalinas. Today we have the fine paved auto highway—constructed in recent years, primarily through the use of federal prisoners—leading to this area. It is used not only for summer camps and homes but also as a winter playground (skiing). This highway is known as the Hitchcock Highway—after Frank H. Hitchcock, publisher and at one time Postmaster General, who devoted a good deal of his time and energy to helping promote the project.

The duties of early-day rangers were colorfully described by a Mr. Ferris, correspondent for the *Joliet* (Ill.) *Daily News*: "The forest ranger had to be a Solomon in wisdom, and a steam locomotive in a test of endurance. Likewise, he must be a good judge of horseflesh, a blacksmith and a packer, a lumberman, a carpenter, a cowboy, a civil engineer, and an electrician, a botanist, bookkeeper, at all times sober, and a gentleman. In addition to all this, he must pass a Civil Service examination."

Few writers mentioned the wives of these early-day forest rangers, but among Fred Winn's notes I found the following comments, made by some understanding inspector:

"Those wives of pioneer forest rangers not only could, but had to take hardships: weeks alone at the station, unexpected visits from war-painted Indians, sudden influxes of fire fighters, whom they not only had to feed, but equip and direct for fire fighting when ranger-husbands were away. . . It takes steady nerves and confidence in your man to have him gone for two weeks in rough, tough country when you know threats have been made to kill him. Trying to raise children in a cabin remote from doctors and drug stores requires another type of courage. . .

"Lewis Claud Way, of Oracle, remembers a forest fire long ago on the north slope of Mt. Lemmon. He and Ranger Jim Westfall fought it, aided by 'Mrs. Jim, who was as good on a fire line as any man,' Frank Cole and Bug Christman. It took them three days to corral the fire and a bear which Cole had killed was their only food during that time. . .

"Yes, life was tough for the rangers in those horse and buggy days. They had to know every creek, peak,

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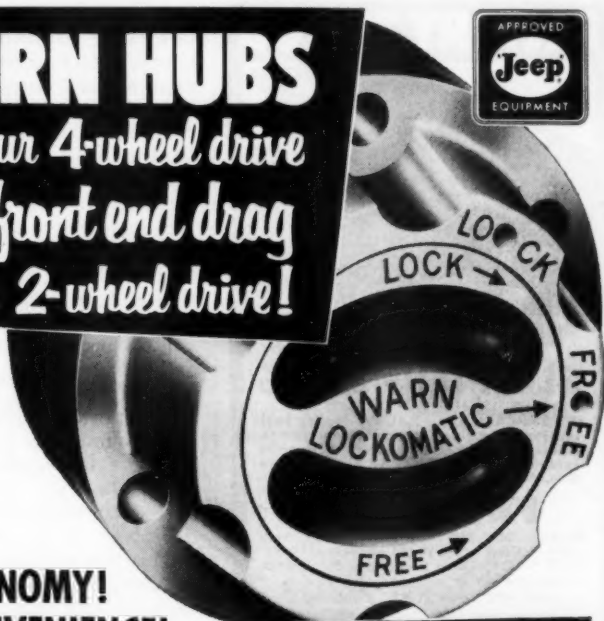
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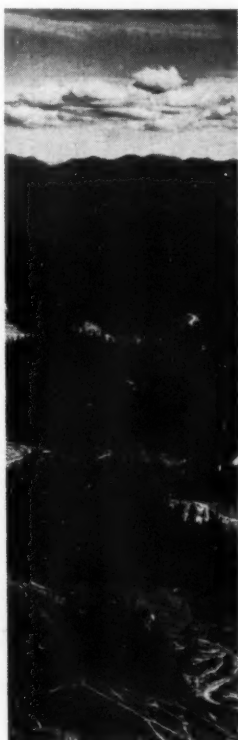
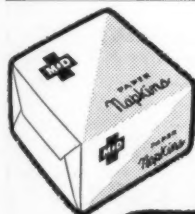
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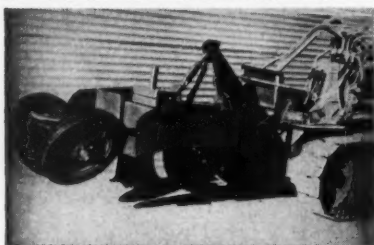
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spring, and canyon on every mountain range within their assigned territory; they had to be clever woodsmen to read forest signs for lions, bear, deer, antelope and coyote; they must read all the cattle brands, be familiar with every rancher, farmer, squatter, prospector and mine operator; and above all they had to know the 'Rule Book' for the Forest Service so they could enforce every regulation. Under oath to serve the Nation and its people, the Forest Service ranger of bygone days or the present can be no weakling."

The surveying and posting of national forest boundaries was one of the important jobs to be done by rangers and their assistants. An item in the *Coronado-Garces Newsletter* reported that, "A supply of tin boundary notices was received in this office. They are being mailed to the rangers as needed, in four-pound packages, containing nine signs each." This was the weight limit with which packages could be mailed free.

Another item in the *Coronado-Garces Newsletter* showed that supervisors sometimes quoted items from the newsletters of other forests. One such item from the *Datil Forest Newsletter* quoted by Supervisor Robert Selkirk of the Coronado to impress his rangers read: "Stand loyally for the great Service in whose employment you are. Your position is one of honor as well as responsibility; regard it as such and stand for all the rules and regulations. Be polite; be courteous; be accessible, approachable; stand straight; work early and late, if necessary; Be happy; Do not grow old; Be Accurate."

Regarding methods of fighting forest fires one early-day ranger had the following to say: "The most important fire fighting equipment is the tightly woven Navaho blanket, 2' x 8' in size. I find from experience that these blankets are better than canvas or other blankets as they have a tendency to retain moisture for a greater length of time. They are also heavy enough to whip out the strongest flames. This blanket is carried under the saddle next to the body of the horse and will be found to contain enough moisture from the perspiration of the horse to extinguish fires for several hours and no perceptible injury to the blanket results when used for this purpose. As a saddle blanket is necessary in riding a horse, the ranger will be well prepared to extinguish fires at a moment's notice."

Methods of fighting fires today are

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3. Drown your campfire, then stir and drown again.
4. Ask about the law before burning grass, brush, fence rows or trash.

certainly quite different than they were in Johnston's time. Nowadays, whole camps are dropped into the high country by airplanes; helicopters survey fires and orders are given by public address systems. Big bombers bomb a fire with flame retardants, and mechanical burros pack in men and supplies.

Destructive floods were not unusual, and Assistant Forest Ranger Emil Hendricks of the Whetstone Mountains district of the Coronado reported his experiences on July 16, 1916, as follows:

"I went to Benson on Sunday, July 16 to see Mr. Roberts in regard to his cattle on the national forest and while returning, a storm came up. To keep out of the rain I went to Fairlee and Jennings' ranch at the clay mine and put my horse in the stable. About ten minutes after, a cloudburst struck the mountain; the water came down about 10 to 12 feet deep and took stable, horse, saddle and everything else around there down the canyon. I found the saddle but the horse got drowned and I lost the mail. The Boquillas Land and Cattle Company lost a gasoline engine which went down the canyon about 200 yards. With the exception of the fence torn up in a few places, no damage was done to the ranger station."

Fred Winn called attention to a summer flood occurring on July 11, 1878 in Rucker Canyon, in which Lieut. John A. Rucker of the 6th Cavalry was drowned while attempting to rescue a fellow officer who in turn had gone to rescue a teamster who had been caught in the torrent. Rucker Canyon is so named after this Lieut. Rucker. Judging from the above reports, heavy and destructive floods have been occurring for a long, long time on the Coronado. It wouldn't appear that those early floods were due primarily to over-grazing (nor today) but rather to the heavy rain storms that occur



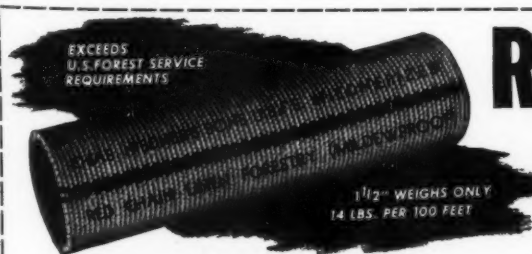
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in the southwest from time to time.

Mt. Graham, formerly part of the Crook National Forest and now included in the Coronado, has an interesting background. The big butte stands out alone on the Arizona desert, raising its lofty peak to 10,720 feet above sea level, and the forest area embracing Mt. Graham has a history not common, in many respects, to other national forest areas.

At first little or no attention was paid to this area, and during the summer fires would burn for weeks at a time. As time passed, the copper mines in the Globe area began looking around for timber, having stripped Pinal Mountain near Globe of the stand of fir and yellow pine. Mt. Graham seemed to be the next-nearest supply. Scrip was filed and a survey started by the Old Dominion Copper Company, some corners of which are probably still in existence, to locate the sections upon which desirable timber grew.

After the scrip was filed and the survey started, the General Land Office sent an inspector to examine and report on the area covered by the filing, especially as related to agriculture and timber aspects. A Mr. T. T. Hunter, a progressive fellow and cattleman from Louisiana, then postmaster at Safford, noted the accumulation of mail for the inspector who finally appeared. The inspector mentioned to Mr. Hunter his mission and remarked that from general appearances the land had no agricultural possibilities and little timber value. He left his forwarding address, whereupon Mr. Hunter emphatically urged a closer examination of the timber possibilities. The inspector was finally persuaded actually to ride up in the mountains and really make an examination. After a couple of days the inspector returned to Safford and wired his chief to withhold the filing until his report had been received. The result was cancellation of the filing, followed by a Presidential proclamation setting aside the area as a forest preserve. So far as I know, to Mr. Hunter alone should be given the credit of saving Mt. Graham timber, so vital to Gila Valley and surrounding territory. To this, later, were added the Santa Teresa, Galiuro and Winchester mountains.

There have been many changes on the Coronado National Forest since Don P. Johnston reported as forest supervisor in 1916. New roads, new campgrounds, better understanding

of what constitutes good forest and range management, better communications, and better housing for rangers are all things that have come about not only on the Coronado but on practically all of the national forests in the United States.

In concluding this article it seems well to call attention to the factual information that for many years has been, and still is being, obtained through research. Attention is called especially to the Santa Rita Experimental Range which is located within the boundaries of the Coronado Forest, about 35 miles south of Tucson. It is the oldest experimental range in the United States, having been established in 1903 by the Bureau of Plant Industry, but subsequently, in 1915, taken over by the research branch of the U. S. Forest Service.

Attention is also called to the Sierra Ancha Experimental Forest, established within the boundaries of the neighboring Tonto National Forest, about the year 1928. Here an intensive experiment in watershed management is at present being conducted, with the view of determining what kind of practices are necessary to insure maximum water yields for irrigation of crop land and for domestic use for the inhabitants of the low land of the semi-arid valleys. Mention of this is made in that the theme of this year's AFA Annual Meeting, to be held in Tucson, is "Water, Forests, and People," with special attention to the Southwest.

Forestry Stamp Comes Off the Press

(From page 11)

plate. Pressmen who have been operating the machine since it was acquired continue to be amazed at the machine's numerous functions and the superb quality of its reproductions.

Stamps are printed on gummed paper with 200 stamps per sheet. The sheets are next run through a perforating machine, before being divided into sheets of 50 stamps. The stamps are then packaged for distribution.

The first U. S. stamp printed on the Giori press was the United States Flag issue of July 4, 1957. Only a few others have been printed on this press, including the forestry stamp's predecessor in the conservation series, the Whooping Crane Stamp.

Incidentally, the total number of stamps printed each year at the Bureau of Engraving is 25 billion.



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Youth Fitness Conference

MEMBERS of the President's Citizens Advisory Committee on the Fitness of American Youth and the President's Council on Youth Fitness held their second annual meeting at Fort Ritchie, Maryland last month to discuss "what the council and the citizen's advisory committee should be doing for the benefit of our Nation's youth."

The council, which has been in existence for 26 months, is composed of the Secretaries of Interior, Defense, Agriculture, Labor, Health, Education and Welfare, and Commerce, and the Housing Administrator. However, the citizen's advisory committee consists of representatives from many vital areas of national life. AFA's Executive Vice President Fred E. Hornaday represents the association on the committee.

President Eisenhower wrote the conferees that "the health and vigor of our young citizens guarantee the future life and spirit of the Republic. We must therefore continue to emphasize the full preparation of our youth in every way—physical, emotional, mental, social and spiritual—so that they may be equal to the great responsibilities they will inherit."

In presiding at the meeting's first session, Secretary of the Interior Fred A. Seaton described the role of the

council in the national youth fitness program. "It has been, and it must continue to be, a stimulator; a catalyst," he said. "... The President's Council on Youth Fitness will remain, I hope, a small, dedicated administrative group to arouse and alert local communities with their diverse agencies, organizations, and facilities presently in existence—arouse them to plan and execute the type of fitness program necessary to meet the needs of their locality. What is needed is not more programs but rather all-inclusive community-wide planning and action to make the most constructive possible use of existing facilities and existing professional know-how within each community. Perhaps ultimately there should be an expansion of local facilities, but there is no point in expanding until the existing programs and facilities are used to capacity..."

"Within the departments of the federal government there are a host of services," he continued, "which can and should be used to further youth fitness: services for health, education, recreation, area development, welfare. Moreover, under federal jurisdiction there are many, many facilities: parks, forests, public lands, reservoirs, beaches. As our population expands and urbanization increases, the problem is to make the best possible use of these facilities and of those under the jurisdiction of the states, communities, and nongovernment groups..."

Shane MacCarthy, the council's executive secretary, presented a brief progress report and said, "Applying the fitness yardstick to communal life in our country today, we must examine how human beings are living, how they are using their energies, how they are designing their environments, how they are working, how they are recreating, because at the very kernel of the fitness concept is the dignity of the human being. Into this context fit the youth who must conform to what we design for them..."

"Your presence," MacCarthy told the group, "shows that you share these convictions on the importance of this subject. You know that fitness is not achieved by fitful starts and stops. It is not a crash project to overcome a momentary problem.

AMERICAN BOX BOARD COMPANY





AFA's Executive Vice President Fred E. Hornaday is member of Citizens Advisory Committee on Fitness of American Youth

Its efforts will always be required as we become more mechanical and automatic and as our population increases. Perhaps, therefore, as we stress the need for current action programs, you, of the President's Citizens Advisory Committee, can tell us how venture money for fitness research can be made available, since we need more facts instead of impressionable opinions to stimulate people to action.

"We need your help on the best method for translating this theme into a suggested set of programs for local action. Each community must be irrigated by the flow of human fitness, which is the only guarantee we have that our civilization will renew itself with strength and will endure."

Another of the many distinguished individuals to address the meeting was Secretary of Agriculture Ezra Taft Benson. He said that our youth "are the trustees of posterity" and that the future of the country will soon rest in their hands. "Our boys and girls—young men and women—are our greatest asset."

Physical well-being, Benson declared, "is not only a priceless asset to one's self—it is a heritage to be passed on. With good health, all other activities of life are greatly enhanced. A clean mind in a healthy body enables one to render far more effective service to others. It helps one provide more vigorous leadership. It gives our every experience in life more zest and more meaning. Robust health is a noble and worthwhile attainment."

He recalled that Theodore Roosevelt was frail as a boy, but that he built himself up, "made himself over . . . made himself FIT."

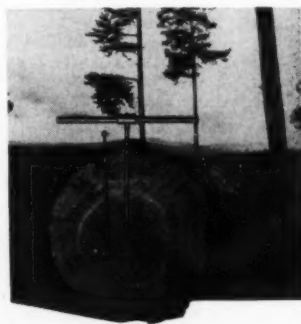


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"The Forestry Trinity"

(From page 8)

a larger share of the thirty million or, if they have busied themselves, why they have failed.

Permit me to offer a suggestion. Why not ask President Langdale to call a meeting of our Research Committee the day before the regular directors' meeting in October. This will enable the committee to work out an over-all policy—with suggestions for the board the next day. The board then can instruct the Legislative Committee not only in regard to the Cooley Bill but as to the various other forestry appropriations we are to support. It is my "horse-back" opinion that the committee may find we do not need any more law, but only more money and a cohesive program as to where the money shall be spent and by whom.

And now I come to a problem that should give us all pause for thought. A new government department has entered the forestry field. The Soil Conservation Service has been called upon to add forestry to its list of functions. I don't know who selected them to enter the field. It seems that in order to help the farmer with the land he took out of production, the Soil Conservation Service has been called in to help him use the money in planting trees and in other timberland conservation practices. Consequently, we have now another government department to supervise forestry. I guess, like Topsy, it just "grewed." I doubt that the Soil Conservation Service wanted the additional functions. However, from all reports, once saddled with the job it is letting no grass grow under its feet in trying to attend to the added forestry duties assigned to it.

Apparently, the greatest impact of this entry of the Soil Conservation Service into forestry has been felt by the state forestry services. It is understood that one state forester has already thrown up his hands and left the service free to do what it will. It seems to me that this whole situation should be appraised from its over-all effect on a combined private enterprise-national-state forestry policy. I do know this: private enterprise should certainly explore this expansion of the Soil Conservation Service into the field of forestry and come up with a report as to the facts. There are not enough forestry dollars to go around as it is. I'm not criticizing the Soil Conservation Service. They were given a job to do and they are trying to do it. Whether the Congress threw it in their lap or some other federal agency did, I don't know. It seems to me, in the absence of a cohesive program we are in danger of drifting into a multi-lateral policy, which is not conducive to our best interest. A national forestry policy wherein the federal government scatters its forestry functions about like a farmer broadcasts grain leads to confusion and ineffectiveness, as well as duplication and extravagance. Liaison committees of private enterprise are long over-due! What a help they could be—to themselves, to the national and state governments, and to our schools of forestry. With vision, they can create and help maintain a forestry policy for the nation that will meet every wood and wood derivative requirement for the Atomic Age. With a policy of cohesion and fair play, we will keep ourselves in a position to ride the crest of our full forestry potential at all times.

In conclusion, I wish to assert that it is



HAS IT OCCURRED TO YOU?

There are many members and friends of the American Forestry Association who find it impractical to contribute to its educational activities during their lifetime. Gifts in the form of a bequest are welcomed. Officers of the Association will gladly consult at any time with those who wish to know more about designating gifts for educational work in forest conservation.

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"I hereby give, devise and bequeath _____ to The American Forestry Association, Washington, D. C., a non-profit District of Columbia corporation, or its successor, or successors, for the purpose of promoting the corporate activities of said Association."

THE AMERICAN FORESTRY ASSOCIATION

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not my purpose to be constantly throwing grist in the hopper. However, in stepping down from the ranks of officialdom I did want to bring these items before the directors, who always give serious consideration to all matters pertaining to the cause they protect. All but one of the matters I have mentioned here have been running through my mind for a year or more. While I have discussed them casually with various individuals, I deemed it wise to wait until I stepped down as president to amplify them. First things must come first. To ex-president Oettmeier and me fell the task of steering our association to a foundation of financial stability and to show the forestry world that we were not only dedicated to service but were actually rendering it. With the cohesive determination of a united membership—both of the small acreage and large acreage members—we achieved that plateau, and now with two of the greatest men of southern forestry as president and vice president our horizons of service are boundless. I am sure we will always be willing to meet every problem that develops and will so visualize and act as to prevent many problems from ever arising. Above all, may we always have the courage of the Golden Rule!

Naturally, I hope you and others agree with the points of view I have expressed in this letter. On the other hand, I respect the right of you and others to your ideas and concepts, should you differ. When you and I are right, our ideas and concepts will be adopted—if not by our own organization then by another. If we are wrong, they will die, as they should. The handwriting on any wall will teach us that we must direct life for the purpose of man's welfare and up-lift—if we are to advance civilization. It matters not whether that life is a human being or a pine tree. And you and I learned a long time ago that there is nothing static in this old world. Static itself is not even static!

J. V. Whitfield
Wallace, N. C.

Forest Forum

(From page 4)

Alaska, and that a number of villages have been destroyed and lives lost. Other newspapers in the territory give the same treatment to these important stories that we do.

I am surprised that the Bureau of Land Management permits such uninformed employees to write stories for a reliable publication like yours. I am also surprised you don't edit your copy closer.

Morgan Coe
The Alaska
Daily Empire
General Manager
Juneau, Alaska

Mr. Coe:

Thank you for sending me a copy of your letter to Mr. James B. Craig, Editor of *American Forests*.

From the tone of your letter I do not suppose that it will really make any difference in your opinion, but I should like to call some items to your attention.

1. If I made a serious misstatement in the article, "Burning Alaska," and if it is as damaging as you seem to think, I am very sorry.

2. The article was checked and re-

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checked by several people who have lived and worked in Alaska for many years, and who have a wealth of professional knowledge of the forest and rangeland (tundra, muskeg, non-forest) fire problems in Alaska and their history.

3. A mass of Alaska newspapers, newspaper clippings, and editorials concerning forest and range fires covering a period of many years was carefully checked.

4. Many official reports, studies, and summaries on Alaska forest and "rangeland" fires were carefully read. Books on Alaska were checked. I have also checked a list of serious forest and "rangeland" fires in Alaska.

5. I wrote letters to people who know Alaska and its forest and "rangeland" fire problems asking for information. I have talked about forest and "rangeland" fires with people who have lived in Alaska for decades and with some who still live there. I have heard lectures on the subject. But with all this research I have never heard or found any mention of a forest or "rangeland" fire sweeping into Douglas or, as you state, "Alaska's largest city (estimated at 30,000)" and wiping it out. I suppose you mean Anchorage. I know that Fort Yukon was seriously threatened a few years ago and that Bethel and other towns and villages have been threatened by forest and "rangeland" fires. I have also found references to extremely destructive fires which started within or at the edge of towns. Could it be that the fires you cite started in the towns or at the edge of the towns, then spread to areas outside the towns? I was writing about forest and "rangeland" fires, not the numerous town or village fires or how many times a town might have been "wiped out" by overheated stoves.

6. As to newspaper coverage of Alaska fires, I am in no wise backing down from

my statement, for I know it is right. If you read my article, "Burning Alaska," you must know that the viewpoint is slanted entirely to informing readers in the States. And you must also know that my reference was to newspapers published in the States—not Alaska.

People who know anything about Alaska newspapers know that you devote considerable space to Alaska fires of all kinds. It's local news. But readers of my article know that I was referring to newspapers in the forty-eight states, for most of them have never seen an Alaskan newspaper. And I say again that the newspapers in the forty-eight states carry very little news of Alaskan fires, even here in the Northwest where we have long had a keen interest in Alaska.

I hope you will understand from the above that I did a large amount of research, and that people who know Alaska forest and "rangeland" fires checked the article carefully. I doubt that even an Alaskan editor could write an article on the subject without some criticism for either commission or omission, or the language used in phrasing his statements.

I write many articles for which I do extensive research. I try to write honestly and objectively. It is very seldom that my facts are questioned. Until your letter the criticism has always been constructive.

As a conservationist, I hope that the article "Burning Alaska" will be helpful by focusing attention on the tremendous problems in protecting Alaska against forest and "rangeland" fires. I know that it has already helped to arouse some Congressional attention. I doubt that the small points you have raised will detract from whatever value the article may have.

John Clark Hunt
Portland 10, Oregon

Letter from Alaska

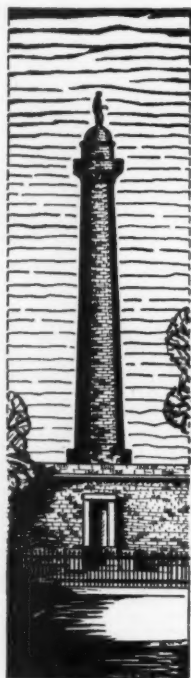
Dear Mr. Pomeroy:

Thank you for sending to me a copy of "California Lands—Ownership, Use, and Management." I have not had an opportunity to read the report yet, but it appears to be a good, objective review of the land and resource problem of California, with sound suggestions for future management research.

To have a similar study made of Alaska's land and resource problems, especially at this time, would be of exceptional value to both Alaska and the Nation. Not again will the opportunity occur for such a study to be made as a state is born and its managers eagerly and hopefully search for guidance in establishing land disposal, management, and utilization standards and policies.

Formal statehood is expected at the end of this year. The first state legislature will meet in late January, 1959. At that time, the several departments of state management will be organized and empowered to establish the pattern of the future. In the interim, the several territorial agencies will function. Can you imagine the voluminous records, charts, plans, etc., that will be prepared before the "shakedown" is completed?

There currently is a Territorial Department of Lands which will function until the new lands and resource agencies are established, whatever their name and structure. The current Territorial Land Board (policy) and Department of Lands (under a director) will carry over into the new



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state government. Such resource and land management as is now being done on territorial lands is being handled by this group. After statehood?

At present, the territory has certain school sections (sections 16 and 36), college grant lands and Mental Health Act selections to work with; however, actual fee ownership of these lands will not occur until statehood is formalized. At that time the approximately 125,000 acres of school lands, 60,000 acres of college lands and authorized—but not selected—mental health lands of one million acres will become the management base for the state. A real case of scattered ownership! However, the state will have then a major land selection grant of approximately 103 million acres to be made within the next 25 years. Wise selection will allow for consolidated ownership and, of course, economical management.

What lands to select? The state must look for both short and long-term revenue. What lands to dispose of, and how? A land policy must be formulated. What lands and resources to hold and how to manage and utilize? There is the problem. On one hand, pressures will exist for immediate disposal to private ownership; on the other hand, public ownership advocates will wave the finger of overshadowing future doom if all lands and resources are not kept under stringent control. Truly, the new state conservation leaders will have a challenging task in setting up sound, wise policy and management procedures. Factual, knowledgeable, analytical data presented objectively by an authoritative organization such as The American Forestry Association could be of great assistance.

The new state constitution, insofar as resource management is concerned, is a simple statement of the policy of sustained yield. Fish and wildlife have certain specialized directives but, in large part, the formulation of working programs, objectives and procedures was left to the first and subsequent legislatures. Thus, the conservation leaders will not be hamstrung by constitutional restrictions; rather, their need will be for such resource surveys, management research, etc., as can be used by them and the legislature in setting up wise current objectives. Too, should changes be necessary the authority will be in the legislature.

Alaska's basic problem of today is largely fivefold:

1) Distance from the States and centers of investment capital. This has made Alaska less known than foreign countries or even the Belgian Congo. Investment capital is usually conservative and follows known paths rather than "venturesome" trails.

2) Small scattered population which inhibits strong, local market development in such size or volume as to warrant large capital investment.

3) Poor, undeveloped ground transportation routes which would tie in the several Alaskan communities. Air travel in Alaska is the major transportation system. Highly suitable to Alaska, it nevertheless prevents lowcost movement of bulk goods.

4) High transportation costs to and from the Pacific Northwest. Alaska, without a developed industrial, agricultural, or service economy, must import most of its daily

(Turn to page 77)

Greetings

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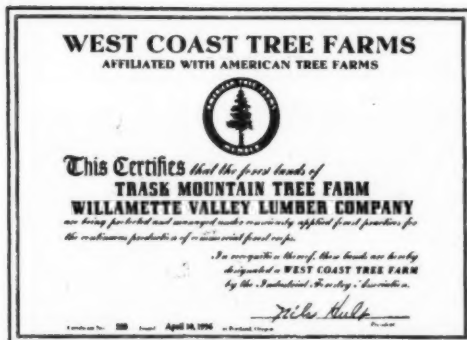


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Tom Watters Praised

Some Oregonians think Tom Watters, head of the Management Specialists to wrap up the Klamath Indian case, got a raw deal from certain eastern Congressmen. The following article from the Klamath Falls "Rotary Record" explains why Oregonians feel that way, and extols Watters' handling of a most difficult situation.

UNDERSTAND that the Chamber of Commerce is going to give a dinner to Senator Neuberger in appreciation for what he did for the Klamath Indian timber. They should, but they should also give just as big a dinner and a medal to boot, to Tom Watters.

Handed what had all the earmarks of a hopeless dirty job by his friend, Doug McKay, Tom has performed a real service to this community. We always knew he was a fighter but we did not realize what a lot of good sense, patience and determination the man had. The so-called Management Specialists started out as a three-man commission and ended up with Tom doing most of the work after Phillips resigned and Gene Favell took sick.

UP AGAINST IT

Anybody who has ever dealt with our Indian friends will realize what Tom was up against. Basically, they believe that any plan dreamed up by White Men is bad for Red Men, not without some historical justification.

On top of that, they don't trust some of their own people any more than they do White Men. Then, too, they can't keep their minds made up to anything. Something they all agree to today, tomorrow they will listen to in apparent amazement as if they never heard of it before.

In the beginning, certain eastern Congressmen who just could not imagine anybody doing a public job without some personal selfish interest, broadcast some gratuitous insults about the Management Specialists. About that time I expected to read any day that Tom had given them a swift left jab in the nose. Twenty years ago he would have. But in his mature years Tom has turned into quite a diplomat; he always was a politician.

GOOD DIPLOMAT

If you don't think it takes a lot of doing to persuade government bureaus like the Indian Service that you are right and they are wrong, you just never have "wrestled" bureaucratic Washington. Tom did. In the very last round at the Congressional hearings, when it looked as if the National Lumbermen's Association had thrown a monkey wrench in the machinery with a letter by an apparently totally uninformed small-time Oregon lumberman, Tom persuaded Ralph McCartney to write a letter to Senator Neuberger that really made the National Lumbermen's Association look silly. Klamath County, the Klamath Indians, and a good part of the people of Oregon owe Tom Watters a real debt of gratitude for a very tough job well done.

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—N. R.

Rotary Record
Klamath Falls, Oregon
August 29, 1958

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Forest Forum

(From page 75)

needs in all items. Conversely, items produced in Alaska are at a competitive disadvantage in the Northwest because they have high delivery costs, yet are produced with no advantages such as lower labor costs or item scarcity, etc.

5) High labor and living costs coupled with climatic problems make industry look twice before establishing in Alaska—since their only apparent advantage is the transportation costs of similar imports from the States.

These are not all the problems, of course, but are indicative. Some will eventually change under state sovereignty when certain economic disadvantages suffered under territorial status will change.

Now, as to what needs to be done in Alaska as far as lands and resources are concerned:

1. State land selections, from the viewpoints of both the state and the government, will be a problem until made, for neither public body can truly formulate long-range plans until then, or until the bulk are selected.

2. Inventory of the resources on the public domain—both federal and state. The forest survey is being extended in a very broad fashion to the domain lands during the next four to five years. Truly, a more intensive pattern should be developed, for the mutual advantage of all conservation agencies. The need is basically money to do the job.

3. With inventory data at hand, wiser and more sound management policies can be formulated.

4. Research needs to be done in all phases of forest, wildlife, etc. To date, little or no research has been done. The federal agencies have been largely engaged in a holding action and trespass prosecution until a state was formed. Research is an urgent need. Alaska's is the only boreal forest association under the American flag. It follows that research performed in the States is not always applicable, as to results, in Alaska. Our problems more nearly parallel those of the Scandinavian countries, but with the great difference of social and economic development standards and utilization.

5. Recreation is viewed to be a major present and future "industry" in Alaska. Both the territory and the BLM are engaged in the development of small highway and lake campgrounds and picnic spots. The National Park Service has certain parks and monuments. The state, I am certain, will develop state parks. Wilderness areas as such are a bone of contention in Alaska because they represent large areas of "locked-up resources." The entire program needs objective review by outsiders.

6. Alaska has a tremendous potential of hydroelectric power and wood fiber production. The interior forests are vast and will constitute the major industry of the future.

7. Oil and gas production will, of course, play an as yet undetermined role in Alaska's future. If large production fields are hit, then Alaska's income from royalties could have a strong effect on its management policy of other resources.

Roger R. Robinson
Area Fire Control Officer
Anchorage, Alaska

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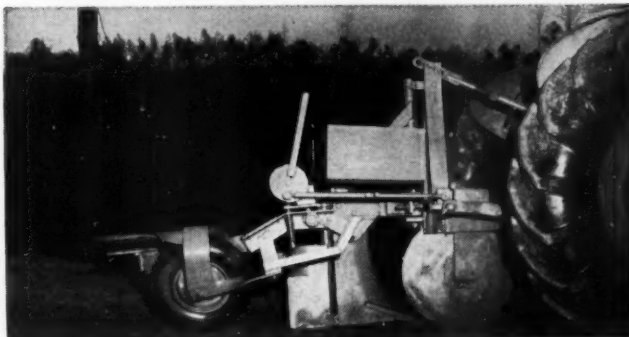
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Reading About Resources

(From page 38)

a great civilization with its curious and ephemeral network of ways."

Having said this, what a pity that Lerner didn't chew on it for a while. But then, this is the weakness of the whole book.

NEW AND TO NOTE:

America's Garden Book, by James and Louise Bush-Brown. Charles Scribner's Sons, N.Y. 1958. 752 pp. \$7.95.

A completely revised and enlarged edition of a standard work, which is both a monument to the inexhaustible knowledge of the authors and a crutch for the amateur gardener whose green thumb is turning brown around the edges.

Salmon of the Pacific Northwest, Fish vs. Dams, by Anthony Netboy. Binfords & Mort, Portland, Oregon. 1958. 122 pp. \$3.00.

A knowledgeable survey of the life and times of the hard-beset salmon in the burgeoning Northwest. Specialized but substantial.

Owen Wister Out West, His Journals and Letters, ed. by Fanny Kemble Wister. Univ. of Chicago Press. 1958. 269 pp. \$5.00.

Delightful first-hand accounts of the wonders of the West before tourist flights peopled this mysterious region with hot-dog eaters. Wister both lived and wrote with zest.

Petrified Forest Trails, A Guide to the Petrified Forests of America, A Handbook for the Collector of Petrified Woods, by Jay Ellis Ransom. Mineralogist Publishing Co., Portland, Oregon. 1955. 80 pp. \$2.00.

A book which is new only to us, **Petrified Forest Trails**, despite poor editing and printing, is useful both as a tool for rock-hounds who are westward bound and as a reference in the amateur mineralogist's library. **Hurt Not the Earth**, by E. Newton-White. Ryerson Press, Toronto. 1958. 188 pp. \$4.95.

A Canadian writes with strenuous emotion of the resource problems, and opportunities, of his rich country. There is much sound material here, marred by the sometimes unbridled zeal of the author.

Animal Legends, by Maurice Burton. Coward-McCann, N.Y. 1957. 318 pp. \$4.95.

A Britisher examines and evaluates the legendary life of animals, and finds both the true and the false in these traditions. Competent.

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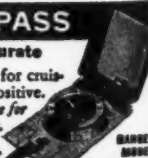
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Candidates For AFA Board Named

The American Forestry Association's Committee on Elections, consisting of Mrs. Katharine Jackson Lee, Chairman, Tom Gill and John F. Shanklin has selected the following slate of candidates for directors of The American Forestry Association, to serve for the terms indicated. Ballots will be mailed to the membership, which should be returned to AFA, 919-17th Street, N. W., Washington 6, D. C., so that they will be received on or before the voting deadline, November 30, 1958.

FOR DIRECTORS (For three-year terms—Six to be elected January 1, 1959-December 31, 1961:

Charles A. Connaughton, California	Henry T. McKnight, Minnesota
George L. Drake, Washington	DeWitt Nelson, California
Karl T. Frederick, New York	Carl F. Rehnberg, California

FOR DIRECTOR (For one-year term—One to be elected January 1, 1959-December 31, 1959:

George Wall Merck, New Jersey

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Submitted by Richard L. Gordon, Cincinnati, Ohio





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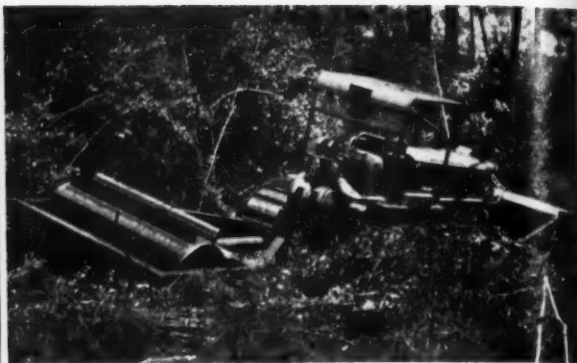
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HOW RIEGEL USES CAT DIESEL TRACTORS FOR PROFITABLE SITE PREPARATION



One of six D6s: Preparing site with a disc harrow, this D6 averages 6 to 8 acres a day. Riegel counts on similar production from its other D6s. Rated at 93 flywheel HP and equipped with No. 6A Bulldozers and winches, these machines also build roads and fire lines.



One of two D7s: Pulling a rolling chopper, this D7 equipped with No. 7A Bulldozer covers 17 to 20 acres a day. Riegel gets the same production from its other D7. Riegel also uses its D7s, rated at 128 flywheel horsepower, for road construction.



One of three D4s: Equipped with No. 4A Bulldozers, Riegel's D4s are often employed for light site preparation. Their main duty: fire line work. Rated at 63 flywheel horsepower, they're also used for clearing right of way, like the D4 shown here.

Of the 235,000 acres in its Woodlands Division, Bolton, N. C., the Riegel Paper Company clears and plants 10,000 acres a year with about 9,000,000 pines. The Division, standardizing 100% on Cat-built machines, has 12 in its line-up—two D7s, six D6s, three D4s and a No. 12 Motor Grader. Chief Forester E. S. Thornton says: "We are well satisfied with the tractors and the service we get from our Caterpillar Dealer."

Standardizing on rugged yellow machines has many advantages. Their availability is exceptionally high. They work day after day with a minimum of down time and maintenance. For example, the exclusive Caterpillar oil clutch delivers 2,000 hours without adjustment. Other advantages: operator familiarity with one make of machine means greater production. And there's a big plus in one-

stop service, wherever and whenever you need it, from your Caterpillar Dealer. From the D4 (63 flywheel HP) to the take-charge D9 (320 flywheel HP), there's a Cat Diesel Tractor suited for every phase of site preparation.

To help you in your selection, Caterpillar has compiled cost analyses of its tractors in a wide range of jobs—Stump Treatment; Stump Clearing and Tree Cutting; Chaining; Raking and Windrowing; Harrowing; Planting. For further information, write Logging Section, Caterpillar Tractor Co., or call your nearby Caterpillar Dealer.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

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**MODERN HEAVY-DUTY
MACHINES FOR PROFITABLE
SITE PREPARATION**

